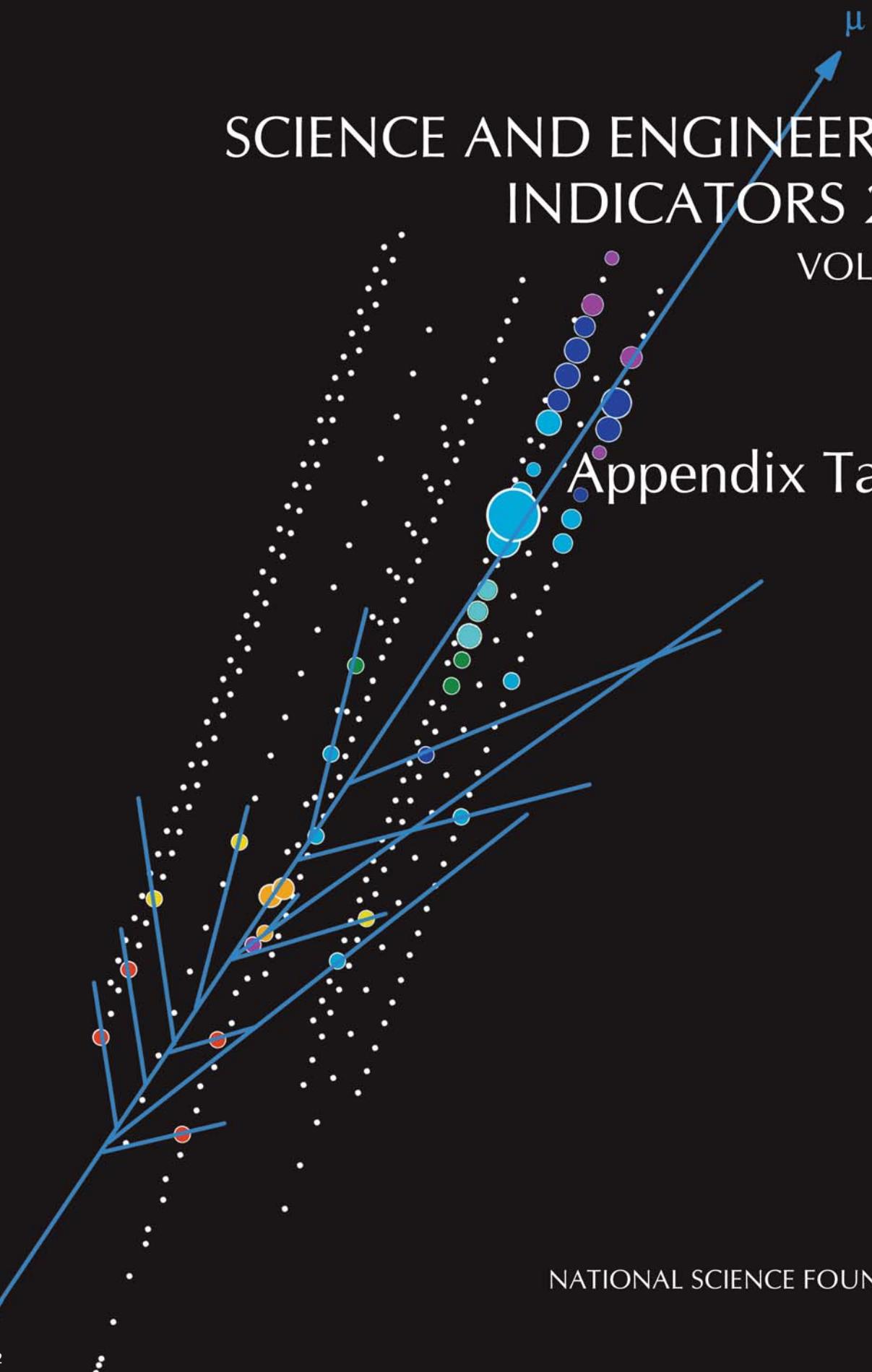


SCIENCE AND ENGINEERING INDICATORS 2002

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Appendix Tables



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Appendix table 2-1.
Population of 20- to 24-year-olds in selected countries and regions: 1975–2010
 (In thousands)

Year	China	India	Western Europe	United States	Japan
1975	89,178	52,885	25,819	19,527	9,189
1976	88,370	54,634	26,075	19,922	8,916
1977	87,569	56,441	26,336	20,244	8,652
1978	86,776	58,308	26,602	20,505	8,395
1979	85,990	60,237	26,872	20,716	8,146
1980	85,211	62,229	27,146	21,584	7,904
1981	89,116	63,681	27,628	21,508	7,959
1982	93,201	65,167	28,121	21,433	8,015
1983	97,472	66,688	28,626	21,358	8,071
1984	101,940	68,244	29,143	21,283	8,127
1985	106,612	69,837	29,672	21,208	8,184
1986	110,434	71,349	29,575	20,700	8,329
1987	114,392	72,893	29,482	20,205	8,477
1988	118,493	74,470	29,391	19,721	8,628
1989	122,740	76,082	29,302	19,249	8,781
1990	127,140	77,729	29,356	18,788	8,937
1991	126,109	79,529	28,732	18,780	9,137
1992	125,086	81,372	28,096	18,771	9,342
1993	124,072	83,256	27,504	18,762	9,551
1994	123,066	85,185	26,937	17,853	9,765
1995	122,068	87,158	26,393	17,982	9,984
1996	116,094	87,594	25,824	17,508	9,664
1997	110,412	88,033	25,255	17,488	9,354
1998	105,008	88,473	24,686	17,678	9,054
1999	99,869	88,916	24,117	18,026	8,763
2000	94,981	89,361	23,548	18,693	8,482
2001	94,112	92,010	23,324	19,012	8,255
2002	93,251	94,738	23,100	19,438	8,035
2003	92,398	97,546	22,876	19,824	7,820
2004	91,553	100,438	22,652	20,019	7,611
2005	90,715	103,415	22,428	20,159	7,408
2006	95,379	104,983	25,482	20,310	7,282
2007	100,284	106,575	28,535	20,389	7,158
2008	105,440	108,190	31,589	20,521	7,036
2009	110,862	109,831	34,642	20,815	6,917
2010	116,562	111,496	37,696	21,151	6,799

NOTE: Populations for 2001 on are projected.

SOURCES: U.S. Bureau of the Census, International Programs Center. Available at <<http://www.census.gov/ipc/www/>>; and World Bank, Population and Human Resources Department, *Population Projections, 1992–1993 Edition* (Washington, DC, 1993).

Appendix table 2-2.

U.S. population of 18- to 24-year-olds, by race/ethnicity: 1980–2025

Year	Total		White		Black		American Indian/ Alaskan Native		Asian/Pacific Islander		Hispanic	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1980	28,963,077	100	22,054,347	76	3,941,090	14	202,742	1	470,062	2	2,294,836	8
1985	28,902,153	100	21,375,485	74	3,852,829	13	224,071	1	644,946	2	2,804,732	10
1990	27,044,184	100	19,037,286	70	3,686,775	14	218,739	1	873,767	3	3,227,529	12
1995	25,215,085	100	17,057,165	68	3,595,383	14	222,062	1	971,938	4	3,368,450	13
2000	26,631,733	100	17,555,265	66	3,827,679	14	241,888	1	1,041,519	4	3,965,297	15
2005	28,267,085	100	18,443,000	65	3,975,000	14	268,000	1	1,311,000	5	4,270,000	15
2010	30,138,083	100	18,880,000	63	4,354,000	14	282,000	1	1,521,000	5	5,101,000	17
2025	30,372,078	100	16,785,000	55	4,609,000	15	304,000	1	2,114,000	7	6,560,000	22

NOTE: Populations for 2005 on are projected.

SOURCE: U.S. Bureau of the Census, Population Division, *Projections of the Resident Population by Age, Sex, Race and Hispanic Origin: 1999 to 2100* (Washington, DC, 2000). Available at <www.census.gov/population/estimates/nation>.

Science & Engineering Indicators – 2002

Appendix table 2-3.

Enrollment in higher education, by Carnegie institution type: 1967–97

Year	Total	Research		Doctorate granting		Comprehensive		Liberal arts		Two-year	Specialized	Other	Not classified
		I	II	I	II	I	II	I	II				
1967	6,962,403	1,510,037	494,527	437,195	354,542	1,661,186	109,412	203,663	411,819	1,426,223	179,868	26,108	147,823
1968	7,570,446	1,564,981	517,844	455,455	389,249	1,813,749	119,881	209,398	431,621	1,709,796	187,241	27,560	143,671
1969	8,065,047	1,644,645	538,934	483,378	410,395	1,935,316	127,467	215,618	443,108	1,912,663	196,151	29,914	127,458
1970	8,648,124	1,748,776	570,365	509,450	436,660	2,071,472	137,127	221,996	452,087	2,180,252	209,720	32,862	77,357
1971	9,023,721	1,717,735	577,538	519,572	457,251	2,160,655	143,124	228,947	464,590	2,435,108	219,397	35,281	64,523
1972	9,296,311	1,768,282	581,139	521,856	466,371	2,183,621	142,270	233,939	464,218	2,609,721	229,979	31,451	63,464
1973	9,692,665	1,771,632	592,051	526,349	479,905	2,249,865	141,812	236,910	477,097	2,872,230	250,854	36,007	57,953
1974	10,319,864	1,826,768	612,510	545,772	497,963	2,324,124	153,182	238,868	494,426	3,272,215	271,195	34,553	48,288
1975	11,289,129	1,921,415	642,703	560,827	532,135	2,464,953	163,672	240,097	541,017	3,837,843	304,449	35,149	44,869
1976	11,120,093	1,893,269	613,142	568,570	526,247	2,415,834	168,445	240,730	551,890	3,755,311	307,803	33,066	45,786
1977	11,417,253	1,877,142	619,941	579,896	543,360	2,474,300	174,612	243,738	573,678	3,926,266	322,106	35,077	47,137
1978	11,391,377	1,864,590	626,213	581,343	542,558	2,452,812	178,964	251,607	579,494	3,910,980	334,175	34,665	33,976
1979	11,705,797	1,903,347	639,287	594,589	547,418	2,462,361	183,554	251,231	603,830	4,103,418	349,860	34,984	31,918
1980	12,234,644	1,947,444	655,874	604,769	570,666	2,531,409	188,971	260,645	633,712	4,404,276	371,317	35,861	29,700
1981	12,517,753	1,961,015	659,114	610,640	578,653	2,564,542	197,462	257,592	644,924	4,598,599	382,781	37,109	25,322
1982	12,588,520	1,933,340	650,946	606,683	582,638	2,570,690	200,403	252,029	651,192	4,671,136	398,143	37,800	33,520
1983	12,633,930	1,957,038	648,369	612,818	589,126	2,592,710	205,689	254,700	668,374	4,640,343	408,894	39,412	16,457
1984	12,400,392	1,952,748	644,056	604,742	591,400	2,576,072	203,725	253,604	656,099	4,456,709	410,816	38,571	11,850
1985	12,411,945	1,959,685	641,723	603,961	589,103	2,589,406	208,603	254,972	656,146	4,452,391	406,846	38,467	10,642
1986	12,670,121	1,988,839	653,298	609,772	590,694	2,629,336	210,267	257,998	657,695	4,600,773	409,815	39,097	22,537
1987	12,925,116	2,013,832	664,997	619,854	601,073	2,675,959	219,167	262,649	665,726	4,739,689	404,679	41,729	15,762
1988	13,201,196	2,029,004	685,709	631,050	608,610	2,738,209	227,912	269,134	693,026	4,843,313	422,564	39,942	12,723
1989	13,621,203	2,046,868	704,842	644,062	623,988	2,831,502	238,431	266,907	716,902	5,072,690	420,495	40,260	14,256
1990	13,983,255	2,080,412	714,852	657,824	635,833	2,926,402	243,690	268,223	732,654	5,220,767	442,899	42,149	17,550
1991	14,527,724	2,094,841	720,127	660,908	643,519	2,962,524	255,272	268,960	758,023	5,624,420	459,146	44,370	35,614
1992	14,657,118	2,089,045	714,126	655,985	649,549	2,964,105	259,253	266,735	781,247	5,695,378	483,070	46,705	51,920
1993	14,477,792	2,078,622	701,058	648,068	644,533	2,944,113	261,163	264,222	791,140	5,545,475	494,944	48,122	56,332
1994	14,449,476	2,079,559	694,454	639,831	650,816	2,927,198	266,854	264,737	797,156	5,499,655	502,771	49,764	76,681
1995	14,445,438	2,080,163	691,292	638,157	659,197	2,925,255	265,523	267,327	810,206	5,471,342	503,929	49,261	83,786
1996	14,481,915	2,082,713	684,608	632,288	661,015	2,926,182	267,133	269,258	814,037	5,494,333	515,296	50,151	84,901
1997	14,521,994	2,089,243	692,798	633,836	665,881	2,927,240	272,653	272,071	822,304	5,487,309	524,508	48,902	85,249

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey, various years; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS), WebCASPAR Database System. Available at <http://www.nsf.gov/sbe/srs/stats.htm>.

Science & Engineering Indicators – 2002

Appendix table 2-4.

Institutions awarding S&E degrees, by institution type and degree level: 1998

Institution type	Total institutions	Total S&E ^a	Natural sciences	Mathematics and computer sciences	Social and behavioral sciences	Engineering	Engineering technology
Bachelor's degrees							
Total	1,819	1,469	1,302	1,276	1,358	413	331
Research I	88	86	86	86	84	78	20
Research II	38	38	38	38	38	35	13
Doctorate granting I	49	48	46	45	48	24	18
Doctorate granting II	60	59	59	57	57	41	22
Comprehensive I	437	430	414	414	428	135	131
Comprehensive II	92	92	88	84	91	15	17
Liberal arts I	162	156	153	150	156	19	1
Liberal arts II	450	437	385	344	407	37	54
Two-year	74	21	5	8	12	1	24
Specialized	337	84	20	43	27	20	25
Other	19	15	8	4	10	8	1
Not classified	13	3	0	3	0	0	5
Master's degrees							
Total	1,337	776	485	442	640	267	74
Research I	87	86	86	83	86	80	10
Research II	38	38	38	38	38	33	5
Doctorate granting I	50	50	46	45	48	20	8
Doctorate granting II	59	59	55	47	54	35	8
Comprehensive I	438	350	196	194	299	72	38
Comprehensive II	91	34	9	6	20	3	2
Liberal arts I	60	22	10	6	16	2	0
Liberal arts II	188	36	5	3	31	3	1
Two-year	1	0	0	0	0	0	0
Specialized	293	77	36	19	25	18	2
Other	31	23	4	1	22	1	0
Not classified	1	1	0	0	1	0	0
Doctoral degree							
Total	384	331	278	177	253	194	0
Research I	89	89	89	82	86	83	0
Research II	38	38	38	37	37	33	0
Doctorate granting I	50	50	41	28	47	22	0
Doctorate granting II	58	56	47	23	43	33	0
Comprehensive I	63	36	21	0	14	13	0
Comprehensive II	1	1	1	0	0	0	0
Liberal arts I	8	4	2	1	2	1	0
Specialized	60	42	36	3	12	6	0
Other	16	14	2	3	12	3	0
Not classified	1	1	1	0	0	0	0

^aEngineering technology data are not included.

NOTE: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completion Survey; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS), WebCASPAR Database System. Available at <<http://www.nsf.gov/sbe/srs/stats.htm>>.

Appendix table 2-5.
S&E degrees, by institution type and degree level: 1998

Institution type	Total degrees	Total S&E ^a	Natural sciences	Mathematics and computer sciences	Social and behavioral sciences	Engineering	Engineering technology
Bachelor's degrees							
Total	1,199,579	390,618	104,673	39,768	185,263	60,914	14,825
Research I	284,646	128,965	35,684	8,412	56,091	28,778	1,794
Research II	95,528	34,671	9,513	2,367	15,256	7,535	1,049
Doctorate granting I	79,771	23,322	5,437	2,618	11,557	3,710	974
Doctorate granting II	81,192	28,543	6,990	3,089	12,271	6,193	859
Comprehensive I	389,340	103,938	27,084	13,119	53,854	9,881	5,068
Comprehensive II	38,162	8,841	2,383	1,325	4,746	387	604
Liberal arts I	53,966	26,732	8,785	1,880	15,550	517	1
Liberal arts II	121,658	27,780	7,625	4,874	14,321	960	1,874
Two-year	3,884	260	59	68	129	4	739
Specialized	45,637	4,791	706	1,768	293	2,024	1,672
Other	4,946	2,682	407	155	1,195	925	20
Not classified	849	93	0	93	0	0	171
Master's degrees							
Total	431,871	93,918	15,625	15,277	36,878	26,138	1,700
Research I	125,313	37,830	7,278	5,057	10,996	14,499	435
Research II	34,069	10,601	2,013	1,416	3,675	3,497	30
Doctorate granting I	43,424	9,688	1,282	2,268	3,971	2,167	175
Doctorate granting II	34,060	8,929	1,564	1,882	3,125	2,358	97
Comprehensive I	144,049	20,992	2,646	3,777	11,595	2,974	811
Comprehensive II	9,067	627	61	116	425	25	49
Liberal arts I	4,912	750	146	18	567	19	0
Liberal arts II	7,894	819	44	49	673	53	55
Two-year	4	0	0	0	0	0	0
Specialized	26,192	2,139	536	676	472	455	48
Other	2,820	1,476	55	18	1,312	91	0
Not classified	67	67	0	0	67	0	0
Doctoral degrees							
Total	42,683	27,309	11,534	2,102	7,743	5,930	0
Research I	28,569	19,281	8,465	1,529	4,745	4,542	0
Research II	5,093	3,138	1,264	266	978	630	0
Doctorate granting I	4,486	2,117	494	173	1,102	348	0
Doctorate granting II	2,065	1,337	558	120	361	298	0
Comprehensive I	598	211	90	0	61	60	0
Comprehensive II	2	2	2	0	0	0	0
Liberal arts I	106	27	17	3	6	1	0
Specialized	1,068	700	616	4	59	21	0
Other	674	474	6	7	431	30	0
Not classified	22	22	22	0	0	0	0

^aEngineering technology data are not included.

NOTE: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completion Survey; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS), WebCASPAR Database System. Available at <<http://www.nsf.gov/sbe/srs/stats.htm>>.

Appendix table 2-6.

Postsecondary faculty in S&E, by field, race/ethnicity, and employment status: 1999
 (Percentages)

Race/ethnicity and field	Full time		Part time
	2-year institutions	4-year institutions	4-year institutions
White			
Natural sciences and mathematics	82.4	83.3	80.8
Life sciences	88.5	85.0	91.4
Social and behavioral sciences	80.6	86.1	86.6
Engineering and computer sciences	85.4	80.5	82.7
Asian/Pacific Islander			
Natural sciences and mathematics	3.8	10.9	5.6
Life sciences	4.9	9.7	6.0
Social and behavioral sciences	1.8	4.8	2.2
Engineering and computer sciences	4.9	13.5	7.2
Underrepresented minorities			
Natural sciences and mathematics	13.9	5.8	13.7
Life sciences	6.6	5.3	2.7
Social and behavioral sciences	17.6	9.1	11.2
Engineering and computer sciences	9.7	6.0	10.0
Black			
Natural sciences and mathematics	6.1	2.8	8.6
Life sciences	4.3	3.0	2.4
Social and behavioral sciences	11.6	5.5	6.2
Engineering and computer sciences	3.2	2.4	6.3
Hispanic			
Natural sciences and mathematics	7.4	2.6	5.1
Life sciences	2.3	1.7	0.3
Social and behavioral sciences	4.1	2.6	4.3
Engineering and computer sciences	5.5	3.0	3.7
American Indian/Alaskan Native			
Natural sciences and mathematics	0.4	0.4	0.0
Life sciences	0.0	0.6	0.0
Social and behavioral sciences	1.9	1.0	0.7
Engineering and computer sciences	1.0	0.6	0.0

NOTE: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, and ocean sciences.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *1999 National Study of Postsecondary Faculty*, (Washington, DC, Office of Educational Research and Improvement, 2001).

Appendix table 2-7.

Enrollment rates of high school graduates in higher education, by race/ethnicity: 1975–99

Year	Total	White	Black	Hispanic
1975	32.5	32.3	31.5	35.5
1976	33.1	32.8	33.4	35.9
1977	32.5	32.3	31.3	31.5
1978	31.4	31.3	29.6	27.2
1979	31.2	31.3	29.4	30.2
1980	31.8	32.1	27.6	29.9
1981	32.4	32.7	28.0	29.9
1982	33.0	33.3	28.1	29.2
1983	32.5	33.0	27.0	31.5
1984	33.2	33.9	27.2	29.9
1985	33.7	34.9	26.0	26.8
1986	34.0	34.5	28.6	29.4
1987	36.2	37.3	29.5	28.4
1988	37.2	38.6	28.1	30.8
1989	38.1	39.8	30.7	28.7
1990	39.1	40.4	32.7	28.7
1991	41.0	42.4	31.2	34.3
1992	41.7	42.6	33.5	36.8
1993	41.3	42.3	32.4	35.5
1994	42.3	43.7	35.6	33.1
1995	42.3	44.0	35.4	35.2
1996	43.4	45.1	35.9	34.5
1997	45.2	46.6	39.5	36.0
1998	45.2	46.9	40.0	33.9
1999	43.7	45.3	39.2	31.6

NOTE: Data are enrollment as percentage of all 18-to 24-year-old high school graduates.

SOURCE: U.S. Department of Commerce, U.S. Bureau of the Census, Current Population Survey (Washington, DC, 2000). Available at <<http://www.census.gov/population/Socdemo/school/report98/>>.

Appendix table 2-8.

Undergraduate enrollment, by race/ethnicity, citizenship, and sex: 1978–97 (selected years)

Race/ethnicity and citizenship	1978	1980	1982	1984	1986	1988	1990	1992	1993	1994	1995	1996	1997
Total													
Total	9,807,229	10,603,579	10,978,407	10,766,018	10,952,167	11,449,592	12,110,847	12,693,778	12,482,813	12,417,701	12,399,826	12,424,570	12,458,456
White	7,871,673	8,482,058	8,676,751	8,136,203	8,406,100	8,904,598	9,273,439	9,388,226	9,101,085	8,916,770	8,806,202	8,731,457	8,684,498
Asian/Pacific Islander	206,065	251,582	311,459	321,295	384,007	441,489	506,837	620,463	642,893	683,508	700,828	721,773	745,299
Black	967,890	1,020,293	1,021,552	918,865	982,216	1,038,464	1,148,979	1,282,732	1,292,621	1,319,684	1,336,052	1,354,910	1,382,028
Hispanic	500,595	555,135	624,456	587,764	691,624	773,132	866,096	1,032,817	1,064,348	1,109,931	1,167,472	1,218,711	1,253,807
American Indian/Alaskan Native ..	71,891	77,920	81,333	71,495	81,396	85,867	95,496	110,879	112,727	117,434	120,728	122,943	127,191
Foreign citizen	170,517	210,624	224,014	206,231	199,921	206,042	220,000	258,661	269,139	270,374	268,544	274,776	265,633
Other/unknown race/ethnicity	18,598	5,967	38,842	524,165	206,903	0	0	0	0	0	0	0	0
Male													
Total	4,813,654	5,052,234	5,232,920	5,066,097	5,078,768	5,190,405	5,438,593	5,644,113	5,547,126	5,484,342	5,467,370	5,475,620	5,467,836
White	3,884,358	4,055,418	4,134,132	3,834,825	3,908,642	4,053,295	4,184,777	4,195,726	4,067,289	3,963,400	3,918,342	3,890,906	3,858,521
Asian/Pacific Islander	108,261	129,808	164,699	169,341	201,591	226,940	257,618	308,564	318,289	335,960	342,084	350,740	359,927
Black	416,742	428,664	425,157	373,771	396,749	408,033	448,389	496,123	500,194	503,512	507,380	513,676	521,120
Hispanic	243,972	260,660	290,631	268,882	313,111	341,494	381,165	453,488	467,155	485,782	505,162	523,717	535,742
American Indian/Alaskan Native ..	33,481	34,772	36,745	31,715	35,614	36,170	39,938	46,572	47,233	48,650	50,223	51,008	52,651
Foreign citizen	116,583	140,142	149,592	135,887	127,364	124,473	126,706	143,640	146,966	147,038	144,179	145,573	139,875
Other/unknown race/ethnicity	10,257	2,770	31,964	251,676	95,697	0	0	0	0	0	0	0	0
Female													
Total	4,993,575	5,551,345	5,745,487	5,699,921	5,873,399	6,259,187	6,672,254	7,049,665	6,935,687	6,933,359	6,932,456	6,948,950	6,990,620
White	3,987,315	4,426,640	4,542,619	4,301,378	4,497,458	4,851,303	5,088,662	5,192,500	5,033,796	4,953,370	4,887,860	4,840,551	4,825,977
Asian/Pacific Islander	97,804	121,774	146,760	151,954	182,416	214,549	249,219	311,899	324,604	347,548	358,744	371,033	385,372
Black	551,148	591,629	596,395	545,094	585,467	630,431	700,590	786,609	792,427	816,172	828,672	841,234	860,908
Hispanic	256,623	294,475	333,825	318,882	378,513	431,638	484,931	579,329	597,193	624,149	662,310	694,994	718,065
American Indian/Alaskan Native ..	38,410	43,148	44,588	39,780	45,782	49,697	55,558	64,307	65,494	68,784	70,505	71,935	74,540
Foreign citizen	53,934	70,482	74,422	70,344	72,557	81,569	93,294	115,021	122,173	123,336	124,365	129,203	125,758
Other/unknown race/ethnicity	8,341	3,197	6,878	272,489	111,206	0	0	0	0	0	0	0	0

NOTE: Foreign citizen includes temporary residents only.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS) WebCASPAR Database System (Arlington, VA, 2001). Available at <<http://www.nsf.gov/sbe/srs/stats.htm>>.

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Appendix table 2-9.

Undergraduate enrollment in engineering and engineering technology programs: 1979–99 (selected years)

Enrollment and institutions	1979	1981	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Engineering																			
Total students	366,299	420,402	441,205	429,499	420,864	407,657	392,198	385,412	378,277	380,287	379,977	382,525	375,944	367,298	363,315	356,177	365,358	366,991	361,395
Total full time	340,488	387,577	406,144	394,635	384,191	369,520	356,998	346,169	338,529	338,842	339,397	344,126	337,817	328,463	325,489	317,772	326,458	329,657	323,713
Freshman	103,724	115,280	109,638	105,249	103,225	99,238	95,453	98,009	95,420	94,346	93,002	93,427	88,875	85,047	86,299	85,375	90,882	94,909	93,951
Sophomore	78,594	87,519	89,515	83,946	79,627	76,195	73,317	71,030	71,267	72,204	71,257	71,644	69,974	68,177	67,981	66,475	67,879	69,608	69,941
Junior	74,928	86,633	91,233	89,509	84,875	80,386	77,085	73,761	70,483	72,666	73,516	74,871	73,449	71,753	68,894	67,190	68,812	67,638	66,975
Senior	77,823	92,414	109,036	109,695	110,305	107,773	104,003	97,614	94,465	92,989	94,683	98,235	98,214	96,523	95,226	92,213	92,496	90,653	86,225
Fifth year	5,419	5,731	6,722	6,236	6,159	5,928	7,140	5,755	6,894	6,637	6,939	5,949	7,305	6,963	7,089	6,519	6,389	6,849	6,621
Total part time	25,811	32,825	35,061	34,864	36,673	38,137	35,200	39,243	39,748	41,445	40,580	38,399	38,127	38,835	37,826	38,405	38,900	37,334	37,682
Total institutions	286	286	292	289	297	311	316	320	323	328	336	337	336	337	337	335	338	340	341
ABET-accredited institutions ^a	239	250	258	258	264	270	277	281	284	289	303	309	310	315	316	317	319	321	323
Engineering technology																			
Total students	NA	191,152	163,226	157,897	123,571	137,390	128,501	131,704	127,687	123,217	127,135	124,736	106,976	107,275	105,809	105,345	108,459	108,993	95,231
Total full time	NA	134,444	112,745	111,446	83,038	90,536	80,600	79,624	76,179	72,390	75,340	73,245	65,581	66,457	63,929	62,330	67,864	68,545	55,613
First year	NA	65,893	53,032	46,806	34,389	39,177	32,685	33,477	32,225	30,178	31,302	30,543	24,824	24,574	25,665	26,583	30,227	28,367	21,349
Second year	NA	40,774	33,799	31,716	23,293	25,612	22,906	21,852	21,627	20,586	20,815	21,081	19,962	20,997	18,863	17,267	19,106	18,426	11,706
Other years associated	NA	872	925	1,165	466	657	1,404	1,760	1,810	1,603	2,221	2,336	2,564	3,121	2,007	2,780	3,442	6,080	5,289
Bachelor's of engineering technology																			
third and later years	NA	26,905	24,989	31,759	24,890	25,090	23,605	22,535	20,517	20,023	21,002	19,285	18,231	17,765	17,394	15,700	15,089	15,672	17,269
Total part time	NA	56,708	50,481	46,451	40,533	46,854	47,901	52,080	51,508	50,827	51,795	51,491	41,395	40,818	41,880	43,015	40,595	40,448	39,618
Total institutions	NA	NA	NA	NA	200	257	291	310	286	303	302	298	263	294	289	285	285	279	280

NA = not available

^aInstitutions with at least one curriculum accredited by the Accreditation Board of Engineering and Technology (ABET).SOURCE: American Association of Engineering Societies, Engineering Workforce Commission, *Engineering and Technology Enrollments, Fall 1999* (Washington, DC, 2000).

Appendix table 2-10.
Engineering enrollment, by level and attendance: 1979–99

Year	Undergraduate						Graduate					
	Total		Full time		Part time		Total		Full time		Part time	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1979	366,299	100.0	340,488	93.0	25,811	7.0	67,152	100.0	41,384	61.6	25,768	38.4
1980	397,344	100.0	365,117	91.9	32,227	8.1	72,585	100.0	44,335	61.1	28,250	38.9
1981	420,402	100.0	387,577	92.2	32,825	7.8	77,600	100.0	47,782	61.6	29,818	38.4
1982	435,330	100.0	403,390	92.7	31,940	7.3	81,999	100.0	50,410	61.5	31,589	38.5
1983	441,205	100.0	406,144	92.1	35,061	7.9	91,040	100.0	57,366	63.0	33,674	37.0
1984	429,499	100.0	394,635	91.9	34,864	8.1	93,165	100.0	57,277	61.5	35,888	38.5
1985	420,864	100.0	384,191	91.3	36,673	8.7	95,505	100.0	60,641	63.5	34,864	36.5
1986	407,657	100.0	369,520	90.6	38,137	9.4	107,196	100.0	67,333	62.8	39,863	37.2
1987	392,198	100.0	356,998	91.0	35,200	9.0	110,778	100.0	69,343	62.6	41,435	37.4
1988	385,412	100.0	346,169	89.8	39,243	10.2	112,007	100.0	69,226	61.8	42,781	38.2
1989	378,277	100.0	338,529	89.5	39,748	10.5	114,048	100.0	68,967	60.5	45,081	39.5
1990	380,287	100.0	338,842	89.1	41,445	10.9	117,834	100.0	72,456	61.5	45,378	38.5
1991	379,977	100.0	339,397	89.3	40,580	10.7	123,497	100.0	74,568	60.4	48,929	39.6
1992	382,525	100.0	344,126	90.0	38,399	10.0	128,854	100.0	78,651	61.0	50,203	39.0
1993	375,944	100.0	337,817	89.9	38,127	10.1	128,081	100.0	78,885	61.6	49,196	38.4
1994	367,298	100.0	328,463	89.4	38,835	10.6	122,242	100.0	74,596	61.0	47,646	39.0
1995	363,315	100.0	325,489	89.6	37,826	10.4	118,506	100.0	72,215	60.9	46,291	39.1
1996	356,177	100.0	317,772	89.2	38,405	10.8	113,063	100.0	70,129	62.0	42,934	38.0
1997	365,358	100.0	326,458	89.4	38,900	10.6	112,257	100.0	70,447	62.8	41,810	37.2
1998	366,991	100.0	329,657	89.8	37,334	10.2	110,355	100.0	69,519	63.0	40,836	37.0
1999	361,485	100.0	323,713	89.6	37,682	10.4	105,070	100.0	67,634	64.4	37,372	35.6

SOURCE: American Association of Engineering Societies, Engineering Workforce Commission, *Engineering Technology Enrollments, Fall 1999* (Washington, DC, 2000).

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Appendix table 2-11.

Freshmen intending to major in S&E, by race/ethnicity, field, and sex: 1975–2000

(Percentages)

Race/ethnicity, field, and sex	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		
White																												
Total intending S&E majors	32.7	32.1	29.2	30.5	28.8	29.8	30.5	31.1	32.0	31.2	30.3	28.2	27.1	27.2	29.0	28.8	30.0	30.2	31.2	30.3	30.2	31.5	31.8	29.5	30.5	29.3		
Physical sciences	3.7	3.6	3.2	3.1	2.7	2.6	2.6	2.2	2.4	2.3	2.3	2.0	1.9	1.9	2.0	2.1	2.3	2.4	2.6	2.1	2.5	2.1	2.4	2.0	2.0	2.0	2.0	
Biological and agricultural sciences	9.6	10.0	7.1	6.9	6.2	5.8	5.7	5.3	5.5	5.7	5.3	5.0	4.7	4.7	5.1	5.4	6.0	6.8	7.6	8.8	9.0	8.9	8.6	7.7	7.9	6.6		
Mathematics and statistics	1.5	1.4	1.2	1.3	0.9	0.9	0.9	1.0	1.2	1.2	1.1	0.9	0.9	0.8	0.9	0.9	0.8	0.9	0.8	0.9	0.8	0.7	0.7	0.7	0.6	0.7		
Computer sciences	0.8	0.9	0.9	1.5	1.7	2.4	3.6	4.6	4.5	3.1	2.0	1.6	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.6	1.8	2.2	2.5	2.8	2.9	3.0	
Social and behavioral sciences	8.3	7.7	7.4	7.5	7.2	6.7	6.6	6.3	6.8	7.7	8.9	8.7	9.3	10.2	10.1	9.8	9.3	9.4	9.4	9.4	9.4	9.1	8.7	8.7	8.6	8.4	8.7	
Engineering	8.8	8.5	9.4	10.2	10.1	11.4	11.1	11.7	11.6	11.2	10.7	10.0	8.9	8.3	9.6	9.3	10.3	9.5	9.4	9.4	7.9	7.5	8.9	9.0	7.9	8.5	8.3	
Males intending S&E majors	42.4	42.0	38.5	39.9	38.3	39.7	41.1	41.6	42.4	40.6	38.8	36.4	34.5	33.9	36.5	36.4	38.0	36.9	38.9	37.1	36.2	38.9	38.7	36.2	37.7	37.0		
Physical sciences	5.5	5.3	4.5	4.7	4.0	3.7	3.8	3.3	3.4	3.2	3.2	3.1	2.8	3.0	3.0	3.2	3.1	3.1	3.3	2.9	2.9	2.7	3.0	2.4	2.4	2.5		
Biological and agricultural sciences	11.4	11.7	8.2	7.7	7.1	6.7	6.7	6.2	6.3	6.3	5.8	5.5	5.3	5.1	5.5	5.8	6.5	7.2	8.1	9.0	8.6	8.4	7.8	7.3	7.1	6.0		
Mathematics and statistics	1.6	1.7	1.3	1.4	1.0	1.0	0.9	0.9	1.3	1.1	1.2	1.1	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.9		
Computer sciences	0.9	1.2	1.1	1.7	2.1	2.8	4.4	5.5	5.7	4.2	2.9	2.5	2.2	2.0	2.2	2.0	2.2	2.1	2.3	2.8	3.3	4.1	4.5	5.1	5.4	5.6		
Social and behavioral sciences	7.8	7.1	6.6	6.2	5.9	5.8	5.8	5.4	5.6	6.3	7.2	6.5	7.0	7.8	7.8	7.1	7.6	6.9	6.7	6.3	6.0	6.3	6.7					
Engineering	15.2	15.0	16.8	18.2	18.2	19.7	19.5	20.3	20.1	19.5	18.5	17.7	16.2	15.1	17.0	16.8	18.2	16.4	16.7	14.4	13.7	16.2	16.4	14.7	15.8	15.3		
Females intending S&E majors	22.3	21.7	19.8	21.3	20.1	20.4	20.9	21.4	21.8	22.2	22.2	21.4	20.6	22.2	22.5	22.5	22.9	23.8	25.1	24.8	25.1	25.5	25.6	23.7	24.6	23.5		
Physical sciences	1.5	1.5	1.5	1.6	1.6	1.2	1.3	1.2	1.3	1.3	1.2	1.3	1.3	1.3	1.4	1.6	2.0	1.6	1.9	1.6	1.8	1.5	1.6	1.5	1.5			
Biological and agricultural sciences	7.8	8.1	6.2	6.2	5.2	5.0	4.8	4.5	4.5	5.0	4.9	4.7	4.3	4.5	4.5	4.9	5.7	6.5	7.3	8.6	9.1	9.3	9.3	8.3	8.8	7.5		
Mathematics and statistics	1.5	1.2	1.1	1.2	0.9	0.9	1.0	1.0	1.2	1.3	1.1	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6		
Computer sciences	0.6	0.6	0.7	1.2	1.4	2.0	2.9	3.7	3.4	2.0	1.2	0.8	0.6	0.7	0.6	0.7	0.6	0.5	0.5	0.5	0.5	0.6	0.8	0.8	0.8	0.8		
Social and behavioral sciences	9.0	8.3	8.4	8.5	8.3	8.0	7.6	7.4	7.8	9.2	10.5	10.8	11.2	12.5	12.5	11.9	11.4	11.3	11.2	10.7	10.5	10.5	10.1	10.1	10.4	10.6		
Engineering	1.9	2.0	1.9	2.6	2.7	3.3	3.3	3.6	3.6	3.4	3.2	2.9	2.4	2.4	2.8	2.9	3.0	3.1	3.4	2.7	2.4	2.8	3.0	2.4	2.4	2.5		
Asian American																												
Total intending S&E majors	49.7	49.3	41.4	45.3	48.2	48.2	47.3	49.4	49.6	48.1	50.3	46.2	46.8	44.3	43.5	42.3	43.8	43.3	42.3	44.2	44.2	40.2	46.2	44.2	43.2	44.6	41.8	
Physical sciences	5.4	5.8	4.9	4.7	4.3	3.6	4.2	4.3	3.9	4.2	4.2	3.4	2.9	2.8	2.3	2.6	2.5	2.7	2.5	2.5	2.1	2.1	2.0	2.1	1.6	1.5		
Biological and agricultural sciences	17.1	14.6	9.7	11.2	8.4	8.5	8.6	8.9	11.0	10.7	11.6	11.3	12.1	11.6	9.8	10.1	12.2	13.3	13.4	13.9	13.2	12.6	11.8	11.8	11.2	10.2		
Mathematics and statistics	2.7	2.1	1.4	1.6	1.7	0.7	1.4	1.0	1.7	1.2	1.1	1.2	0.9	0.9	0.8	0.9	0.8	0.8	0.7	0.7	0.6	0.7	0.6	0.5	0.6	0.6		
Computer sciences	1.6	1.7	1.8	2.5	2.9	4.3	4.7	6.3	5.8	4.4	2.0	3.0	3.0	2.4	1.9	2.5	2.7	1.7	2.2	3.4	3.9	5.8	6.2	7.3	9.7	8.3		
Social and behavioral sciences	7.3	7.3	5.6	6.2	5.7	5.6	5.2	6.1	5.6	6.1	7.5	6.7	8.2	9.7	9.4	9.4	8.4	8.5	8.8	7.5	7.1	7.0	6.8	7.1	6.7	7.4		
Engineering	15.6	17.8	18.0	19.1	25.2	25.5	23.2	22.8	21.6	21.5	23.9	20.6	19.7	16.9	19.3	16.8	17.2	16.3	14.7	16.2	13.3	18.0	16.8	14.4	14.8	13.8		
Males intending S&E majors	58.8	60.2	54.1	54.7	58.1	60.1	58.5	59.2	59.9	59.2	59.8	56.2	55.2	52.5	51.9	52.0	53.9	51.1	50.3	52.6	48.1	55.2	54.6	51.7	55.3	51.8		
Physical sciences	7.6	7.2	6.3	5.9	5.8	4.9	5.4	5.3	4.9	5.2	5.5	4.1	3.2	3.6	3.0	3.4	3.2	3.4	2.8	3.1	2.8	2.0	2.2	2.2	2.0	1.7		
Biological and agricultural sciences	17.4	13.7	10.0	9.8	8.5	9.0	7.9	9.1	12.1	10.9	10.2	10.7	11.1	11.7	10.0	10.9	12.2	12.9	13.4	13.1	12.2	11.3	9.9	10.1	8.9	8.5		
Mathematics and statistics	2.7	2.0	1.6	1.8	1.3	0.6	1.2	1.0	1.3	1.1	1.2	1.0	0.7	1.0	0.6	1.0	0.8	1.0	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.7		
Computer sciences	1.5	1.8	2.0	2.1	2.1	3.2	4.1	4.8	5.3	4.3	1.9	3.4	3.8	2.9	2.5	3.6	4.0	2.6	3.4	5.2	5.8	8.8	9.6	11.2	14.7	13.3		
Social and behavioral sciences	5.8	6.1	4.5	5.0	3.7	4.5	3.4	4.2	3.9	5.1	6.4	4.2	5.4	7.0	5.7	6.6	5.8	5.8	6.5	5.1	4.7	4.3	4.9	4.4	4.8	5.5		
Engineering	23.8	29.4	29.7	30.1	36.7	37.9	36.5	34.8	32.4	32.6	34.6	32.8	31.0	26.3	30.1	26.5	27.9	25.4	23.6	25.5	22.0	28.1	27.4	23.2	24.3	22.1		
Females intending S&E majors	38.9	37.0	27.9	35.5	37.0	34.4	35.3	39.1	38.6	36.7	40.1	36.1	37.5	35.7	34.4	32.9	33.9	35.5	34.2	35.6	32.5	36.7	33.7	35.2	34.7	33.3		
Physical sciences	3.0	4.0	3.4	3.5	2.8	2.1	2.7	3.0	2.7	3.2	2.9	2.5	2.4	2.1	1.9	1.6	1.8	2.2	2.2	1.9	1.6	2.3	1.5	1.8	1.4	1.3		
Biological and agricultural sciences	16.6	15.8	9.3	12.6	8.1	8.2	8.8	10.0	10.6	13.1	11.8	13.0	11.6	9.4	9.4	12.3	13.4	13.5	14.8	14.0	14.1	13.4	13.3	13.3	11.7			
Mathematics and statistics	2.7	2.2	1.3	1.5	2.1	0.9	1.6	0.9	2.0	1.2	1.2	1.5	1.2	0.9	1.0	0.8	0.8	0.7	0.8	0.8	0.6	0.6	0.5	0.6	0.7			
Computer sciences	1.9	1.6	1.7	2.9	3.7	5.7	5.3	7.9	6.3	4.4	2.0	2.6	2.0	1.9	1.2	1.5	1.5	0.9	1.1	1.6	2.1	2.6	2.8	3.8	5.0	4.0		
Social and behavioral sciences	9.4	8.6	7.0	7.3	8.0	6.8	7.0	8.3	7.6	6.9	8.7	9.6	11.3	12.6	13.4	12.2	10.9	11.0	10.7	9.9	9.3	10.0	8.8	9.5	8.5	8.9		
Engineering	5.3	4.8	5.2	7.7	12.3	10.7	9.5	10.2	10.0	10.4	12.2	8.1	7.6	6.6	7.5	7.4	6.6	6.6	4.9	7.1	6.6	6.3	5.9	6.7				

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-11.

Freshmen intending to major in S&E, by race/ethnicity, field, and sex: 1975–2000
 (Percentages)

Race/ethnicity, field, and sex	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Black																										
Total intending S&E majors	26.9	28.5	25.4	27.4	26.6	28.3	29.2	31.7	30.0	27.6	29.3	26.4	29.5	29.7	30.1	29.7	34.3	36.0	36.7	33.8	34.1	35.4	36.5	33.0	35.5	34.7
Physical sciences	1.6	2.1	1.3	1.3	1.4	1.2	1.1	1.2	1.1	1.0	1.6	1.0	1.0	0.7	1.2	0.8	1.2	1.3	1.6	1.6	1.6	1.4	1.2	1.1	1.2	1.2
Biological and agricultural sciences	5.6	6.8	4.4	4.5	3.6	3.5	4.0	4.1	4.2	5.0	4.2	3.7	4.1	4.0	4.6	4.6	5.3	6.5	7.4	7.4	8.7	8.6	8.8	7.1	7.9	7.5
Mathematics and statistics	0.8	0.7	0.7	0.8	0.6	0.7	0.8	0.9	0.6	0.6	0.7	0.6	0.6	0.4	0.5	0.6	0.7	0.6	0.8	0.7	0.6	0.6	0.5	0.6	0.5	0.6
Computer sciences	0.7	0.7	1.1	1.8	2.8	4.0	6.0	7.3	8.3	6.2	6.4	3.9	3.7	3.3	4.0	3.9	4.4	4.0	4.2	3.7	4.6	5.0	5.6	6.5	6.7	6.0
Social and behavioral sciences	12.2	11.7	10.1	10.7	9.6	8.5	7.4	6.8	7.0	7.4	6.8	8.8	9.6	13.0	10.6	11.0	10.4	10.8	10.0	10.8	9.9	10.1	10.3	11.8	11.4	11.1
Engineering	6.0	6.5	7.8	8.3	8.6	10.4	9.9	11.4	8.8	7.4	9.6	8.4	10.5	8.1	9.3	8.9	12.4	12.7	12.9	9.5	8.6	9.7	10.0	6.0	7.7	8.4
Males intending S&E majors	32.4	34.2	33.2	33.1	32.7	34.8	36.2	38.7	35.8	33.3	35.1	32.0	35.0	34.1	34.3	32.9	39.8	42.0	43.1	38.3	38.0	38.6	41.5	34.3	39.0	38.3
Physical sciences	2.4	2.8	2.0	1.6	1.5	1.8	1.6	1.8	1.3	1.1	1.9	1.2	1.3	1.1	1.1	1.2	1.1	1.3	2.0	1.8	1.7	1.2	1.6	1.5	1.4	1.4
Biological and agricultural sciences	6.2	7.6	5.2	4.3	4.1	3.2	4.1	4.0	4.9	5.0	3.9	3.8	4.1	4.6	4.2	4.5	4.9	6.5	6.8	6.4	7.6	6.6	7.4	5.6	5.8	5.8
Mathematics and statistics	0.9	0.8	0.7	1.0	0.7	0.8	0.8	0.9	0.8	0.5	0.8	0.8	0.7	0.5	0.4	0.4	0.6	0.6	0.6	0.8	0.8	0.5	0.5	0.6	0.4	
Computer sciences	0.7	0.8	1.2	2.2	2.8	4.0	6.2	7.1	8.0	6.8	7.2	4.0	4.5	3.7	4.9	4.5	4.5	4.4	5.1	4.2	6.0	6.6	7.7	9.2	10.5	9.0
Social and behavioral sciences	10.7	9.6	9.0	8.4	7.9	6.4	6.0	5.4	5.3	7.1	5.4	7.4	6.9	9.6	7.7	7.5	7.4	8.1	7.4	8.1	6.4	6.2	6.6	7.4	7.4	6.5
Engineering	11.5	12.6	15.1	15.6	15.7	18.6	17.5	19.5	15.5	12.8	15.9	14.8	17.5	14.6	16.0	14.8	21.3	21.1	21.2	17.0	15.5	17.5	17.7	10.1	13.3	15.2
Females intending S&E majors	22.9	24.0	19.9	23.6	22.0	23.7	24.4	26.9	25.4	23.7	24.9	22.8	25.6	26.7	27.3	28.0	30.7	32.1	33.0	30.8	31.7	33.2	33.7	32.2	32.9	33.0
Physical sciences	1.0	1.4	0.9	1.2	1.0	0.9	1.0	0.8	0.9	0.9	1.3	0.8	0.9	0.6	1.1	0.7	1.2	1.3	1.7	1.6	1.5	1.5	1.1	0.9	1.0	1.2
Biological and agricultural sciences	5.3	6.2	3.8	4.8	3.4	3.6	3.8	4.1	3.5	4.9	4.5	3.6	3.9	3.5	4.7	5.0	5.7	6.8	7.8	7.7	9.4	9.9	9.7	8.4	9.2	8.6
Mathematics and statistics	0.7	0.7	0.7	0.7	0.6	0.7	0.8	0.9	0.4	0.7	0.6	0.5	0.6	0.6	0.5	0.6	0.7	0.6	0.8	0.7	0.6	0.8	0.5	0.6	0.5	
Computer sciences	0.8	0.7	1.0	1.6	2.8	3.9	5.8	7.5	8.6	5.8	5.9	3.8	3.2	3.1	3.4	3.5	4.3	3.7	3.6	3.4	3.7	3.9	4.2	4.8	4.2	4.2
Social and behavioral sciences	13.3	12.7	11.1	12.0	10.6	9.8	8.3	7.8	7.9	7.6	7.7	9.8	11.2	15.0	12.4	13.4	12.3	12.7	11.7	12.5	12.0	12.5	12.8	14.4	13.8	14.1
Engineering	1.8	2.3	2.4	3.3	3.6	4.8	4.7	5.8	4.1	3.8	4.9	4.3	5.8	3.9	5.2	4.9	6.6	6.9	7.6	4.8	4.4	4.8	5.1	3.2	4.1	4.4
Mexican American/Chicano and Puerto Rican American																										
Total intending S&E majors	36.9	32.4	30.5	26.9	27.6	34.2	33.6	32.4	34.3	31.8	36.8	34.4	34.1	30.6	32.9	33.3	30.0	31.4	32.7	36.5	35.3	34.8	36.1	31.6	35.3	32.2
Physical sciences	3.6	3.5	1.2	1.9	1.9	1.9	2.3	1.5	1.5	1.9	1.9	1.4	1.5	1.5	1.5	1.7	1.8	1.4	1.5	1.6	1.3	1.3	1.4	1.4	1.0	1.4
Biological and agricultural sciences	10.1	8.4	6.0	5.1	6.0	6.7	6.9	5.1	7.3	6.0	7.1	7.0	6.7	5.3	5.6	5.5	6.2	6.8	6.9	8.5	7.9	8.1	9.3	7.8	8.6	7.1
Mathematics and statistics	1.8	1.0	1.0	0.7	0.4	0.8	0.5	0.9	1.1	0.6	0.7	0.8	0.5	0.5	0.6	0.8	0.3	0.7	0.4	0.6	0.5	0.6	0.6	0.6	0.6	0.6
Computer sciences	1.0	0.7	1.5	1.1	1.7	2.4	3.0	4.5	3.6	5.3	2.6	1.6	1.6	1.6	1.5	2.2	1.7	1.6	1.9	2.2	2.9	2.6	2.7	2.9	2.7	
Social and behavioral sciences	13.3	10.7	12.1	9.4	8.8	9.7	7.5	8.3	8.5	7.7	11.9	11.4	12.4	12.8	12.9	12.9	9.9	11.1	12.5	13.5	12.2	11.8	11.4	10.4	10.9	12.3
Engineering	7.1	8.1	8.7	8.7	8.8	12.7	13.4	12.1	12.3	10.3	12.6	12.2	11.4	8.9	10.5	10.8	10.0	9.6	9.7	10.4	11.2	10.1	10.8	8.7	11.3	8.1
Males intending S&E majors	41.2	39.4	38.2	33.3	35.6	39.8	41.5	39.3	39.6	40.6	44.6	40.8	40.3	35.5	39.1	39.2	34.7	36.1	38.2	39.6	40.9	40.9	41.5	36.2	43.2	38.4
Physical sciences	5.3	6.0	1.7	2.6	3.2	2.6	3.0	2.6	2.2	2.5	2.8	1.6	1.9	1.9	2.2	2.6	1.7	1.4	2.2	2.2	1.7	1.4	1.8	2.0	1.1	1.7
Biological and agricultural sciences	10.3	8.3	6.1	5.1	6.9	6.9	7.0	4.8	6.7	6.1	7.4	6.8	6.8	5.7	5.9	6.2	5.5	7.4	7.4	8.7	6.8	7.5	7.7	6.8	7.3	7.1
Mathematics and statistics	2.1	1.3	1.7	1.3	0.5	0.5	0.6	0.8	1.4	0.6	0.8	0.9	0.8	0.7	0.8	0.7	0.5	0.8	0.5	0.8	0.3	0.7	0.6	0.5	0.8	0.6
Computer sciences	1.3	1.2	1.7	1.8	1.5	2.0	3.3	4.4	3.8	6.8	3.6	1.9	1.6	2.1	2.0	1.9	3.0	2.5	2.5	2.8	3.6	5.2	4.2	3.8	5.0	5.1
Social and behavioral sciences	10.8	8.4	10.9	7.0	7.5	7.2	5.4	6.8	6.5	7.5	9.3	7.9	9.7	9.5	10.0	8.6	7.3	8.0	9.8	8.6	7.8	8.4	8.0	7.3	6.9	7.7
Engineering	11.4	14.2	16.1	15.5	16.0	20.6	22.2	19.9	19.0	17.1	20.7	21.7	19.5	15.6	18.2	19.2	16.7	16.0	15.8	16.5	20.7	17.7	19.2	15.8	22.1	16.2
Females intending S&E majors	31.0	25.0	23.3	20.7	21.3	29.0	25.8	26.5	29.0	24.1	30.3	28.8	28.8	26.7	28.0	29.3	25.9	26.8	27.9	33.6	30.6	30.2	31.2	27.8	28.5	27.2
Physical sciences	1.5	1.2	0.7	1.0	1.0	1.4	1.7	0.7	0.8	1.4	1.1	1.1	1.0	1.0	1.3	1.1	1.3	1.3	1.1	1.1	1.2	1.2	1.2	0.8	0.8	1.2
Biological and agricultural sciences	9.5	8.4	5.8	5.2	5.4	6.4	6.6	5.4	7.9	5.9	7.0	7.5	6.6	5.1	5.6	5.1	6.7	6.2	6.5	8.4	8.7	8.7	10.3	8.6	9.4	6.9
Mathematics and statistics	1.3	0.7	0.3	0.3	1.0	0.3	1.0	0.8	0.8	0.5	0.6	0.3	0.4	0.4	0.4	0.8	0.2	0.6	0.4	0.4	0.5	0.4	0.4	0.7	0.4	0.5
Computer sciences	0.6	0.2	1.3	0.5	1.9	2.8	2.7	4.5	3.3	4.0	1.7	1.4	1.6	1.2	1.3	1.2	1.5	1.0	0.8	1.1	1.1	1.2	1.2	1.8	1.2	1.1
Social and behavioral sciences	16.2	12.9	13.1	11.6	10.3	12.3	9.4	9.9	10.2	7.8	14.0	14.1	14.9	15.4	15.2	16.5	12.5	13.7	14.7	17.1	15.8	14.3	14.2	13.0	13.8	15.3
Engineering	1.9	1.6	2.1	2.1	2.4	5.1	5.1	5.0	6.0	4.2	6.0	4.1	4.4	3.6	4.2	4.6	3.7	4.0	4.4	5.5	3.3	4.4	3.9	2.9	2.9	2.2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-11.
Freshmen intending to major in S&E, by race/ethnicity, field, and sex: 1975–2000
(Percentages)

Race/ethnicity, field, and sex	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Other Latinos																										
Total intending S&E majors	NA																									
Physical sciences	NA																									
Biological and agricultural sciences	NA																									
Mathematics and statistics	NA																									
Computer sciences	NA																									
Social and behavioral sciences	NA																									
Engineering	NA																									
Males intending S&E majors	NA																									
Physical sciences	NA																									
Biological and agricultural sciences	NA																									
Mathematics and statistics	NA																									
Computer sciences	NA																									
Social and behavioral sciences	NA																									
Engineering	NA																									
Females intending S&E majors	NA																									
Physical sciences	NA																									
Biological and agricultural sciences	NA																									
Mathematics and statistics	NA																									
Computer sciences	NA																									
Social and behavioral sciences	NA																									
Engineering	NA																									
American Indian																										
Total intending S&E majors	33.3	30.5	31.5	32.3	28.2	34.2	27.4	27.7	26.0	27.5	26.4	29.4	30.8	30.9	32.8	30.8	30.3	30.8	30.6	29.5	29.8	32.8	33.3	31.7	34.1	32.0
Physical sciences	3.5	3.8	2.6	2.0	4.5	1.7	2.1	2.2	2.2	0.9	1.5	2.1	2.2	1.8	1.8	3.1	2.0	1.7	1.5	2.1	2.0	2.6	2.4	2.1	2.6	2.6
Biological and agricultural sciences	9.9	10.1	7.5	7.6	5.1	6.3	4.7	4.4	4.6	8.4	5.3	5.4	6.2	5.5	4.8	7.6	6.5	7.3	7.9	8.0	9.4	8.6	8.8	8.2	9.6	6.7
Mathematics and statistics	0.9	1.1	1.5	1.1	0.1	0.9	0.4	1.1	0.6	0.6	0.5	0.8	1.0	0.6	0.5	0.5	0.3	0.4	0.6	0.7	0.4	0.5	0.5	0.4	0.6	0.4
Computer sciences	0.9	1.3	1.4	1.1	1.1	3.0	2.6	3.5	4.0	3.0	2.8	1.6	1.6	1.8	1.2	1.2	2.1	1.6	1.8	2.1	2.9	3.8	3.5	3.0	2.7	
Social and behavioral sciences	10.5	7.6	10.4	10.1	7.9	8.9	7.3	6.0	5.7	6.8	9.6	9.5	9.6	12.8	13.8	10.3	9.6	10.5	10.5	10.3	9.6	9.9	10.5	11.3	10.4	11.8
Engineering	7.6	6.6	8.1	10.4	9.5	13.4	10.3	10.5	8.9	7.8	6.7	10.0	10.2	8.4	10.7	8.1	9.8	9.3	8.3	6.8	6.3	8.3	7.3	6.2	7.9	7.8
Males intending S&E majors	39.5	39.1	37.9	37.9	37.3	41.7	39.5	34.1	35.2	32.8	33.0	40.6	39.7	37.4	38.8	35.8	37.0	37.1	35.9	34.1	36.5	40.1	37.0	36.4	39.0	36.6
Physical sciences	6.1	5.6	3.8	2.8	5.3	2.4	3.2	2.9	3.6	1.1	2.6	2.8	3.6	2.6	2.5	4.9	2.4	1.9	2.0	3.6	2.4	3.0	3.2	2.6	2.9	3.6
Biological and agricultural sciences	10.6	11.4	9.1	9.0	6.6	8.3	5.8	4.1	6.2	8.3	7.7	7.1	7.2	6.7	5.9	7.4	6.1	7.7	9.5	6.7	9.6	8.1	6.8	6.7	7.9	4.9
Mathematics and statistics	1.2	0.9	2.4	0.6	0.3	1.1	0.7	1.6	0.6	0.1	1.0	0.7	0.8	0.7	0.4	0.9	0.3	0.3	0.8	0.8	0.2	0.6	0.8	0.6	0.7	0.4
Computer sciences	1.2	2.4	1.5	1.2	2.2	3.5	4.0	4.6	4.5	3.3	3.8	2.3	2.6	2.9	1.5	1.3	3.0	2.7	1.9	2.6	4.1	5.5	5.8	6.7	5.4	5.1
Social and behavioral sciences	8.3	6.9	9.3	7.4	7.3	7.4	6.2	2.8	5.5	6.0	6.4	9.5	7.2	8.7	11.2	7.3	6.7	8.6	8.2	7.9	7.5	7.7	6.9	7.4	7.0	8.2
Engineering	12.1	11.9	11.8	16.9	15.6	19.0	19.6	18.1	14.8	14.0	11.5	18.2	18.3	15.8	17.3	14.0	18.5	15.9	13.5	12.5	12.7	15.2	13.5	12.4	15.1	14.4
Females intending S&E majors	26.9	21.9	25.8	25.9	20.5	25.7	16.4	22.4	18.9	22.3	20.8	21.1	23.4	26.5	28.3	26.2	25.3	25.6	26.5	26.2	25.1	27.8	30.7	28.6	30.0	28.4
Physical sciences	1.0	2.4	1.3	0.9	3.6	1.1	1.1	1.9	1.0	0.8	0.7	1.5	0.9	1.1	1.3	1.7	1.7	1.8	1.0	1.0	1.9	2.2	1.9	1.8	2.4	1.8
Biological and agricultural sciences	8.9	8.4	5.9	6.2	3.9	3.8	3.5	4.6	3.7	8.3	3.1	4.2	5.6	4.7	4.0	7.5	6.7	6.8	6.7	8.7	9.1	9.3	10.2	9.3	10.4	7.9
Mathematics and statistics	0.7	1.3	0.7	1.5	0.0	0.7	0.1	0.6	0.7	1.0	0.2	0.8	1.2	0.6	0.6	0.1	0.3	0.6	0.6	0.7	0.5	0.4	0.3	0.2	0.5	0.3
Computer sciences	0.6	0.3	1.3	1.1	0.2	2.5	1.4	2.5	3.7	2.6	1.9	1.2	0.7	1.0	1.0	1.1	1.5	0.7	1.6	0.9	0.7	1.2	2.3	1.4	1.3	0.9
Social and behavioral sciences	12.4	8.4	11.8	12.5	8.7	10.7	8.1	8.9	6.1	7.5	12.4	9.4	11.3	16.4	15.5	12.4	12.0	11.7	12.4	12.1	11.2	11.4	12.9	13.9	12.7	14.4
Engineering	3.3	1.1	4.8	3.7	4.1	6.9	2.2	3.9	3.7	2.1	2.5	4.0	3.7	2.7	5.9	3.4	3.1	4.0	4.2	2.8	1.7	3.3	3.1	2.0	2.7	3.1

NA = not available

NOTE: Physical sciences include physics, chemistry, astronomy, and earth, atmospheric, and ocean sciences.

SOURCE: Higher Education Research Institute (HERI), University of California at Los Angeles, Survey of the American Freshman: National Norms 2000 (Los Angeles: 2000) special tabulations, 2001.

Appendix table 2-12.

Freshmen intending to major in selected S&E fields, by race/ethnicity: 1971–2000
 (Percentages)

Field and sex	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		
Male	65.7	66.6	65.2	65.8	65.1	64.6	65.3	62.6	62.8	63.1	63.1	62.5	62.5	61.7	61.4	60.3	59.2	56.6	57.3	57.1	57.9	57.1	56.1	55.0	54.5	55.6	55.6	55.3	56.2	55.9		
Female	34.3	33.4	34.8	34.2	34.9	35.4	34.7	37.4	37.2	36.9	36.9	37.5	37.5	38.3	38.6	39.7	40.8	43.4	42.7	42.9	42.1	42.9	43.9	45.0	45.5	44.4	44.4	44.7	43.8	44.1		
White																																
All S&E fields	92.1	90.6	91.0	90.5	89.4	88.3	87.9	88.5	86.5	86.2	87.5	85.3	85.4	85.7	83.7	84.0	83.1	80.0	81.8	78.8	76.9	78.8	79.1	76.3	76.2	75.4	76.3	75.9	74.4	72.4		
Physical sciences	94.9	94.1	93.2	92.4	92.5	90.7	91.9	92.6	91.2	90.5	91.7	89.3	90.5	90.2	86.3	88.5	88.3	88.1	87.6	87.6	85.0	86.5	85.7	82.4	84.7	83.7	84.6	83.8	84.9	82.5		
Biological sciences	94.3	93.6	92.3	92.0	91.2	90.1	90.7	90.4	90.0	89.9	89.5	87.6	86.3	85.6	84.2	84.2	82.9	80.3	81.9	79.1	77.5	79.0	79.4	77.3	76.6	76.4	77.0	76.3	75.3	71.5		
Social and behavioral sciences ...	89.2	87.9	88.5	87.8	85.2	84.4	84.3	85.1	84.4	84.7	87.7	85.5	86.4	87.0	88.2	85.6	85.6	80.3	83.5	79.6	79.0	80.8	81.3	78.4	78.6	78.6	78.5	76.5	76.9	74.3		
Mathematics and statistics	93.9	92.2	91.5	92.0	92.1	92.4	92.1	91.7	90.1	89.9	90.1	87.7	90.8	91.6	89.7	89.1	86.2	89.8	86.6	84.7	84.9	86.9	82.2	83.5	83.6	82.9	83.6	82.7	82.8			
Computer sciences	88.0	81.4	86.1	86.0	84.1	85.4	83.1	85.0	79.8	81.3	83.4	81.7	79.0	76.3	71.2	73.9	73.4	68.7	68.5	62.9	61.3	66.4	66.3	67.3	65.2	65.2	68.0	66.1	63.7	64.0		
Engineering	93.2	91.1	92.2	91.5	90.7	88.8	87.9	89.1	86.6	86.1	87.5	85.7	87.2	87.7	83.3	84.0	81.5	80.1	81.1	79.2	76.1	77.1	77.2	73.8	74.3	73.1	75.2	78.0	74.5	73.3		
Asian American																																
All S&E fields	0.9	1.2	1.2	1.5	1.8	1.8	1.8	2.1	2.1	2.0	2.4	2.7	2.6	4.2	4.6	4.7	5.1	4.7	5.2	5.9	5.8	5.7	8.0	7.2	7.9	8.1	7.9	9.4	9.7			
Physical sciences	1.1	1.2	1.4	1.9	1.9	2.0	2.2	1.9	2.3	2.1	2.2	3.1	3.2	3.5	5.4	5.0	4.5	5.1	4.0	4.7	5.2	5.1	4.6	7.0	5.5	5.6	5.4	6.4	6.2	6.5		
Biological sciences	0.5	1.0	1.5	1.6	2.1	1.7	1.8	2.0	1.8	2.1	2.1	3.7	3.3	5.6	6.3	6.9	7.7	6.2	6.9	8.2	7.7	7.4	9.6	8.5	8.2	8.3	8.7	9.4	10.8			
Social and behavioral sciences ...	0.6	0.8	0.5	0.9	1.1	1.0	1.0	1.0	1.1	1.0	1.5	1.5	1.4	2.4	2.3	2.5	3.1	3.0	3.5	3.8	3.7	4.0	4.5	4.3	4.4	4.4	5.0	5.6				
Mathematics and statistics	0.8	1.2	1.2	1.7	2.1	1.7	1.6	1.5	2.6	1.3	1.8	1.6	2.6	1.8	2.8	3.7	3.1	3.7	3.3	3.7	4.3	4.4	4.2	4.8	4.5	5.3	5.1	4.7	6.3	6.9		
Computer sciences	0.9	2.9	1.5	2.3	2.2	1.8	2.4	2.4	2.0	2.0	1.5	1.9	2.0	2.0	1.9	4.0	4.5	4.7	3.4	4.7	6.2	4.7	5.5	10.0	9.3	11.4	11.0	16.1	14.8			
Engineering	1.5	1.7	1.5	1.7	2.1	2.4	2.4	2.2	3.1	2.9	2.6	3.0	3.4	3.5	5.7	5.8	6.0	6.4	6.4	6.7	6.9	6.3	10.5	8.9	10.2	9.8	10.8	11.1				
Black																																
All S&E fields	6.2	6.9	6.6	6.3	7.3	7.9	7.9	7.7	8.8	9.5	8.6	10.4	10.0	9.7	10.0	8.8	9.6	11.7	10.5	12.1	13.1	11.3	11.4	11.1	11.6	11.7	11.4	11.6	10.4	11.5		
Physical sciences	3.4	3.9	4.5	4.3	4.2	5.3	4.2	4.0	4.9	5.7	4.7	6.2	5.2	4.8	6.9	4.8	5.3	5.0	6.1	4.9	7.0	5.9	7.2	7.8	7.2	7.8	6.5	6.5	6.3	7.4		
Biological sciences	4.2	4.5	4.8	4.7	5.1	6.1	5.6	5.7	6.1	6.1	7.8	7.7	8.9	7.8	6.4	7.3	8.6	9.0	10.0	10.0	9.1	9.3	9.0	10.6	10.7	10.5	10.2	9.6	11.3			
Social and behavioral sciences ...	9.2	9.9	9.5	9.3	11.7	12.4	11.7	11.4	11.7	11.4	9.4	10.5	10.2	10.0	7.7	9.2	13.5	10.3	12.8	13.0	10.9	10.3	11.6	11.4	12.0	12.2	13.8	11.9	12.1			
Mathematics and statistics	4.8	5.6	6.5	5.2	4.6	4.6	5.3	5.4	6.2	7.7	7.3	8.9	5.1	5.9	6.2	6.0	6.6	8.4	5.3	7.0	8.7	8.2	7.3	10.3	10.0	8.8	10.0	7.6	8.5	6.6		
Computer sciences	10.0	14.6	11.3	10.2	12.6	10.3	11.1	11.2	15.7	15.0	13.5	14.9	14.9	17.3	18.9	24.9	19.7	19.3	23.1	25.1	28.6	27.5	23.2	24.1	18.9	20.8	18.4	17.0	18.9	15.3	15.6	
Engineering	4.5	5.4	4.9	5.2	5.9	6.7	7.3	6.7	7.7	8.7	7.6	9.4	9.7	10.1	9.4	10.5	13.4	12.2	12.7	11.0	10.9	10.7	10.3	7.6	7.9	9.7						
Hispanic																																
All S&E fields	0.5	1.0	0.8	1.2	1.4	1.1	1.7	1.4	1.8	1.5	1.2	1.8	1.3	1.2	1.5	2.0	1.9	2.3	2.1	2.5	2.6	4.1	3.9	4.9	5.1	5.5	5	5.5	6.4	7.1		
Physical sciences	0.3	0.7	0.8	1.0	1.2	1.2	0.7	1.0	1.5	1.1	1.1	1.3	0.9	1.1	1.1	1.2	1.3	1.8	1.7	2.0	1.8	2.7	2.6	3.7	2.8	3.1	3.6	3.7	3.8	5.3		
Biological sciences	0.5	0.6	0.8	1.1	1.3	1.0	1.4	1.2	1.9	1.6	1.4	1.6	1.6	1.2	1.7	2.4	2.1	2.3	2.1	2.3	2.6	2.3	2.9	2.7	2.9	3.1	3.7	4.3	4.9			
Social and behavioral sciences ...	0.8	1.4	1.0	1.5	1.8	1.5	2.5	1.9	2.2	1.7	1.3	2.1	1.4	1.1	1.7	2.3	2.1	2.7	2.4	2.9	2.8	4.8	5.0	5.8	5.9	6.4	6.1	7.5	9.1			
Mathematics and statistics	0.4	0.8	0.8	1.0	1.4	0.7	1.4	0.9	0.9	1.3	0.4	1.6	1.1	0.6	0.7	1.3	1.0	1.4	1.5	2.0	1.1	3.0	1.9	3.5	2.6	3.3	4.4	5.2	4.7			
Computer sciences	0.8	1.4	0.8	1.1	1.2	1.1	2.5	1.3	2.2	1.1	1.2	1.7	1.0	1.6	1.4	1.8	2.2	1.9	2.0	3.3	4.1	3.6	4.4	4.5	5	4.1	4.8	4.9	5.9			
Engineering	0.5	1.1	0.9	1.2	1.0	1.1	1.5	1.3	1.6	1.3	1.3	1.7	1.1	1.1	1.5	2.1	1.9	2.2	2.2	2.5	3.9	3.7	5.3	5.9	5.8	4.9	5.6	7	6.1			
American Indian																																
All S&E fields	0.9	1.0	0.9	0.8	0.7	0.9	0.7	0.7	0.8	0.8	0.9	0.9	1.1	0.9	0.9	0.9	0.9	0.9	1.0	0.9	1.0	1.3	1.6	1.7	1.7	2.0	2.1	2.3	3.1	2.1	2.3	1.9
Physical sciences	0.8	1.1	0.8	0.9	0.7	1.1	0.6	0.5	1.3	0.6	0.8	0.9	1.2	0.5	0.8	1.0	1.1	0.8	0.9	1.8	1.6	1.4	1.1	2.0	2.1	2.9	3.5	2.3	3.3	2.5		
Biological sciences	1.0	1.1	1.0	0.9	0.8	0.9	0.8	0.7	0.8	0.9	0.9	1.1	1.5	1.1	1.0	1.1	0.9	0.8	1.7	1.7	1.8	1.8	1.9	2.2	2.3	3.1	2.1	2.5	1.8			
Social and behavioral sciences ...	1.0	1.1	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.8	1.0	1.1	0.9	1.0	0.9	1.2	1.0	0.9	1.0	1.2	1.4	1.7	1.9	2.4	2.6	3.7	2.6	2.6	2.4			
Mathematics and statistics	1.0	0.8	0.9	0.5	0.5	0.7	0.9	0.5	0.2	0.8	0.3	1.1	0.7	0.5	0.5	0.7	1.1	0.7	0.6	0.6	1.0	1.6	1.9	1.1	1.7	2.1	1.3	2.4	0.9			
Computer sciences	1.4	0.8	1.5	0.4	0																											

Appendix table 2-13.

Freshmen reporting need for remedial work in science or mathematics, by intended major: 2000
 (Percentages)

Major	Science	Mathematics
S&E	9.4	20.8
Mathematics	5.0	4.0
Physical sciences	7.0	14.2
Computer sciences	8.0	19.7
Biological sciences	11.0	22.6
Social and behavioral science	10.8	28.7
Engineering	8.4	14.5
Non-S&E	10.9	25.7

NOTE: Physical sciences include physics, chemistry, astronomy, and earth, atmospheric, and ocean sciences.

SOURCE: Higher Education Research Institute (HERI), University of California at Los Angeles, *Survey of the American Freshman: National Norms 2000* (Los Angeles: 2000) special tabulations, 2001.

Appendix table 2-14.

Earned associate's degrees, by field and sex: 1975–98 (selected years)

Field	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1994	1995	1996	1997	1998
Total															
All degrees	362,969	409,942	407,471	420,910	461,888	459,087	440,816	440,375	486,297	519,098	546,574	544,094	540,644	546,031	549,191
S&E	NA	NA	NA	NA	23,796	26,486	23,130	19,733	19,352	23,420	25,581	24,228	24,600	25,771	28,646
Natural sciences	NA	NA	NA	NA	5,013	4,321	3,694	3,712	4,112	4,787	5,484	5,456	5,718	5,777	5,881
Physical sciences	NA	NA	NA	NA	1,415	1,002	1,090	1,029	1,218	1,224	1,413	1,459	1,560	1,540	1,518
Biological sciences	NA	NA	NA	NA	990	1,233	995	999	1,142	1,499	1,907	1,901	2,074	2,181	2,176
Agricultural sciences	NA	NA	NA	NA	2,358	2,023	1,569	1,656	1,724	1,896	1,938	1,910	1,895	1,865	2,007
Mathematics and computer sciences	NA	NA	NA	NA	10,707	13,680	9,953	8,846	8,640	10,275	10,634	10,410	10,160	11,425	13,742
Mathematics	NA	NA	NA	NA	789	790	667	654	670	743	766	783	759	793	843
Computer science	NA	NA	NA	NA	9,918	12,890	9,286	8,192	7,970	9,532	9,868	9,627	9,401	10,632	12,899
Social and behavioral sciences	NA	NA	NA	NA	4,803	4,562	4,894	4,440	4,087	5,832	6,619	6,077	6,674	6,681	6,916
Psychology	NA	NA	NA	NA	973	983	1,016	1,113	997	1,235	1,756	1,600	1,584	1,606	1,760
Social sciences	NA	NA	NA	NA	3,830	3,579	3,878	3,327	3,090	4,597	4,863	4,477	5,090	5,075	5,156
Engineering	NA	NA	NA	NA	3,273	3,923	4,589	2,735	2,513	2,526	2,844	2,285	2,048	1,888	2,107
Engineering technologies	30,906	38,588	41,716	52,478	51,317	53,667	49,815	48,342	45,106	40,946	42,414	39,190	35,982	35,221	35,163
Science technologies	2,300	3,087	2,880	2,565	1,463	1,164	947	898	953	1,013	1,150	970	965	893	800
Male															
All degrees	191,855	212,120	193,696	190,152	208,830	204,325	192,227	187,125	200,043	213,263	222,247	219,704	213,090	212,698	215,888
S&E	NA	NA	NA	NA	13,145	14,695	13,152	10,607	10,360	12,103	13,023	12,461	12,207	12,636	14,605
Natural sciences	NA	NA	NA	NA	2,959	2,460	2,113	1,965	2,278	2,686	2,948	2,978	3,041	2,844	2,895
Physical sciences	NA	NA	NA	NA	901	658	663	557	679	663	783	773	830	733	707
Biological sciences	NA	NA	NA	NA	480	554	422	423	457	613	770	757	830	789	793
Agricultural sciences	NA	NA	NA	NA	1,382	1,201	1,002	965	1,119	1,280	1,233	1,300	1,250	1,196	1,267
Mathematics and computer sciences	NA	NA	NA	NA	5,395	7,128	5,297	4,563	4,438	5,123	5,384	5,434	5,326	6,164	7,627
Mathematics	NA	NA	NA	NA	485	489	419	415	406	428	437	438	464	444	490
Computer sciences	NA	NA	NA	NA	4,910	6,639	4,878	4,148	4,032	4,695	4,947	4,996	4,862	5,720	7,137
Social and behavioral sciences	NA	NA	NA	NA	1,876	1,606	1,650	1,671	1,411	2,098	2,217	2,071	2,061	2,011	2,299
Psychology	NA	NA	NA	NA	338	312	294	283	257	282	433	446	405	376	603
Social sciences	NA	NA	NA	NA	1,538	1,294	1,356	1,388	1,154	1,816	1,784	1,625	1,656	1,635	1,696
Engineering	NA	NA	NA	NA	2,915	3,501	4,092	2,408	2,233	2,196	2,474	1,978	1,779	1,617	1,784
Engineering technologies	29,108	34,957	36,749	45,329	45,521	47,946	44,158	42,766	39,777	36,129	36,899	34,196	30,947	29,990	29,949
Science technologies	1,690	2,134	1,937	1,621	918	698	571	562	574	617	703	623	587	499	426
Female															
All degrees	171,114	197,822	213,775	230,758	253,058	254,762	248,589	253,250	286,254	305,835	324,327	324,390	327,554	333,333	333,303
S&E	NA	NA	NA	NA	10,651	11,791	9,978	9,126	8,992	11,317	12,558	11,767	12,393	13,135	14,041
Natural sciences	NA	NA	NA	NA	2,054	1,861	1,581	1,747	1,834	2,101	2,536	2,478	2,677	2,933	2,986
Physical sciences	NA	NA	NA	NA	514	344	427	472	539	561	630	686	730	807	811
Biological sciences	NA	NA	NA	NA	510	679	573	576	685	886	1,137	1,144	1,244	1,392	1,383
Agricultural sciences	NA	NA	NA	NA	976	822	567	691	605	616	705	610	645	669	740
Mathematics and computer sciences	NA	NA	NA	NA	5,312	6,552	4,656	4,283	4,202	5,152	5,250	4,976	4,834	5,261	6,115
Mathematics	NA	NA	NA	NA	304	301	248	239	264	315	329	345	295	349	353
Computer science	NA	NA	NA	NA	5,008	6,251	4,408	4,044	3,938	4,837	4,921	4,631	4,539	4,912	5,762
Social and behavioral sciences	NA	NA	NA	NA	2,927	2,956	3,244	2,769	2,676	3,734	4,402	4,006	4,613	4,670	4,617
Psychology	NA	NA	NA	NA	635	671	722	830	740	953	1,323	1,154	1,179	1,230	1,157
Social sciences	NA	NA	NA	NA	2,292	2,285	2,522	1,939	1,936	2,781	3,079	2,852	3,434	3,440	3,460
Engineering	NA	NA	NA	NA	358	422	497	327	280	330	370	307	269	271	323
Engineering technologies	1,798	3,631	4,967	7,149	5,796	5,721	5,657	5,576	5,329	4,817	5,515	4,994	5,035	5,231	5,214
Science technologies	610	953	943	944	545	466	376	336	379	396	447	347	378	394	374

NA = not available

NOTE: Appendix tables with degree data by sex do not match precisely the degree data by race/ethnicity in any field at the associate, bachelor's or master's degree level. Data on associate's degrees are not available for broad S&E fields before 1983. Physical sciences include physics, chemistry, astronomy, and earth, atmospheric, and ocean sciences.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Earned Degrees and Completion Surveys, unpublished tabulations (Washington, DC); and National Science Foundation, Division of Science Resource Statistics (NSF/SRS); WebCASPAR Data System. Available at <http://www.nsf.gov/sbe/srs/stats.htm>.

Appendix table 2-15.
Earned associate's degrees, by field and race/ethnicity: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total															
All degrees	409,942	407,471	420,910	459,087	440,816	440,375	459,048	486,297	508,704	519,098	546,574	544,094	540,644	546,031	549,191
S&E	NA	NA	NA	25,957	22,167	19,479	19,406	19,154	22,361	23,118	25,172	23,644	23,829	24,721	27,449
Natural sciences	NA	NA	NA	4,691	3,950	3,952	4,286	4,430	4,859	5,090	5,793	5,790	6,101	6,186	6,258
Physical sciences	NA	NA	NA	1,065	1,131	1,060	1,248	1,249	1,229	1,392	1,639	1,645	1,749	1,731	1,698
Biological sciences	NA	NA	NA	1,233	995	999	1,055	1,142	1,378	1,471	1,907	1,901	2,074	2,181	2,176
Agricultural sciences	NA	NA	NA	2,393	1,824	1,893	1,983	2,039	2,252	2,227	2,247	2,244	2,278	2,274	2,384
Mathematics and computer sciences	NA	NA	NA	13,679	9,953	8,846	8,600	8,640	10,346	10,255	10,532	10,230	9,956	10,872	12,990
Mathematics	NA	NA	NA	789	667	654	760	670	744	743	765	782	758	792	843
Computer sciences	NA	NA	NA	12,890	9,286	8,192	7,840	7,970	9,602	9,512	9,767	9,448	9,198	10,080	12,147
Social and behavioral sciences	NA	NA	NA	3,664	3,676	3,949	4,118	3,574	4,441	5,248	6,019	5,348	5,742	5,798	6,101
Psychology	NA	NA	NA	983	1,016	1,113	1,116	997	1,209	1,237	1,756	1,600	1,584	1,608	1,763
Social sciences	NA	NA	NA	2,681	2,660	2,836	3,002	2,577	3,232	4,011	4,263	3,748	4,158	4,190	4,338
Engineering	NA	NA	NA	3,923	4,588	2,732	2,402	2,510	2,715	2,525	2,828	2,276	2,030	1,865	2,100
Non-S&E	NA	NA	NA	433,130	418,649	420,896	439,642	467,143	486,343	495,980	521,402	520,450	516,815	521,310	521,742
Engineering technologies	38,244	40,891	51,661	51,579	47,434	46,180	44,739	42,595	38,015	38,473	39,889	36,956	33,597	32,893	32,919
U.S. citizen/permanent resident															
All degrees	406,611	402,917	414,265	452,661	436,331	434,406	453,111	479,320	500,677	510,074	536,405	534,183	530,622	535,432	537,146
S&E	NA	NA	NA	25,341	21,759	19,018	19,044	18,786	21,841	22,481	24,465	22,937	23,111	23,977	26,509
Natural sciences	NA	NA	NA	4,617	3,869	3,855	4,211	4,357	4,750	4,952	5,636	5,613	5,937	5,995	6,049
Physical sciences	NA	NA	NA	1,045	1,097	1,021	1,215	1,219	1,185	1,325	1,583	1,566	1,663	1,637	1,623
Biological sciences	NA	NA	NA	1,213	960	964	1,031	1,120	1,345	1,433	1,851	1,824	2,014	2,103	2,094
Agricultural sciences	NA	NA	NA	2,359	1,812	1,870	1,965	2,018	2,220	2,194	2,202	2,223	2,260	2,255	2,332
Mathematics and computer sciences	NA	NA	NA	13,366	9,776	8,641	8,431	8,469	10,095	9,971	10,250	9,932	9,665	10,569	12,610
Mathematics	NA	NA	NA	750	655	636	742	654	706	696	726	743	710	748	794
Computer sciences	NA	NA	NA	12,616	9,121	8,005	7,689	7,815	9,389	9,275	9,524	9,189	8,955	9,821	11,816
Social and behavioral sciences	NA	NA	NA	3,591	3,646	3,873	4,070	3,518	4,361	5,111	5,840	5,192	5,549	5,615	5,883
Psychology	NA	NA	NA	969	1,008	1,086	1,109	989	1,196	1,220	1,732	1,581	1,552	1,569	1,705
Social sciences	NA	NA	NA	2,622	2,638	2,787	2,961	2,529	3,165	3,891	4,108	3,611	3,997	4,046	4,178
Engineering	NA	NA	NA	3,767	4,468	2,649	2,332	2,442	2,635	2,447	2,739	2,200	1,960	1,798	1,967
Non-S&E	NA	NA	NA	427,320	414,572	415,388	434,067	460,534	478,836	487,593	511,940	511,246	507,511	511,455	510,637
Engineering technologies	37,851	40,306	50,606	50,899	46,859	45,647	44,272	42,069	37,511	38,093	39,475	36,544	33,265	32,447	32,207
White															
All degrees	342,382	331,173	339,183	355,422	345,546	330,557	343,629	376,869	388,049	392,637	419,962	408,126	403,072	400,307	396,735
S&E	NA	NA	NA	18,133	16,169	13,898	13,684	13,842	15,487	15,631	17,809	16,310	16,177	16,509	17,983
Natural sciences	NA	NA	NA	3,548	3,078	3,231	3,458	3,574	3,878	3,989	4,493	4,326	4,606	4,548	4,547
Physical sciences	NA	NA	NA	734	917	841	974	968	848	995	1,230	1,180	1,183	1,159	1,107
Biological sciences	NA	NA	NA	676	590	685	709	759	992	977	1,304	1,197	1,356	1,310	1,304
Agricultural sciences	NA	NA	NA	2,138	1,571	1,705	1,775	1,847	2,038	2,017	1,959	1,949	2,067	2,079	2,136
Mathematics and computer sciences	NA	NA	NA	10,255	7,360	6,044	5,704	6,054	6,631	6,515	7,133	6,809	6,535	7,122	8,408
Mathematics	NA	NA	NA	525	481	461	538	477	522	509	497	478	439	492	501
Computer sciences	NA	NA	NA	9,730	6,879	5,583	5,166	5,577	6,109	6,006	6,636	6,331	6,096	6,630	7,907
Social and behavioral sciences	NA	NA	NA	2,070	2,496	2,637	2,752	2,347	2,892	3,241	4,050	3,524	3,552	3,499	3,596
Psychology	NA	NA	NA	680	781	845	840	738	918	894	1,321	1,146	1,094	1,087	1,070
Social sciences	NA	NA	NA	1,390	1,715	1,792	1,912	1,609	1,974	2,347	2,729	2,378	2,458	2,412	2,526
Engineering	NA	NA	NA	2,260	3,235	1,986	1,770	1,867	2,086	1,886	2,133	1,651	1,484	1,340	1,432
Non-S&E	NA	NA	NA	337,289	329,377	316,659	329,945	363,027	372,562	377,006	402,153	391,816	386,895	383,798	378,752
Engineering technologies	33,109	33,662	40,804	40,934	37,383	33,584	31,699	33,792	28,242	28,442	31,457	27,737	25,480	24,572	24,313

See explanatory notes and SOURCE at end of table.

Appendix table 2-15.

Earned associate's degrees, by field and race/ethnicity: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Asian/Pacific Islander															
All degrees	7,174	7,617	8,757	10,165	11,329	11,761	12,687	15,069	15,369	16,280	18,555	20,976	22,630	23,882	23,909
S&E	NA	NA	NA	828	1,051	834	851	842	1,118	1,108	1,283	1,353	1,469	1,631	1,795
Natural sciences	NA	NA	NA	86	112	120	179	220	253	228	304	331	388	449	430
Physical sciences	NA	NA	NA	51	43	62	91	86	106	76	122	129	165	180	173
Biological sciences	NA	NA	NA	31	59	52	80	126	137	146	172	190	216	264	248
Agricultural sciences	NA	NA	NA	4	10	6	8	8	10	6	10	12	7	5	9
Mathematics and computer sciences	NA	NA	NA	511	464	401	411	388	548	528	566	603	615	725	885
Mathematics	NA	NA	NA	63	69	65	75	65	64	69	77	93	103	86	100
Computer sciences	NA	NA	NA	448	395	336	336	323	484	459	489	510	512	639	785
Social and behavioral sciences	NA	NA	NA	47	106	119	110	88	132	216	229	267	320	309	315
Psychology	NA	NA	NA	8	19	14	18	24	34	33	37	57	57	63	53
Social sciences	NA	NA	NA	39	87	105	92	64	98	183	192	210	263	246	262
Engineering	NA	NA	NA	184	369	194	151	146	185	136	184	152	146	148	165
Non-S&E	NA	NA	NA	9,337	10,278	10,927	11,836	14,227	14,251	15,172	17,272	19,623	21,161	22,251	22,114
Engineering technologies	781	1,132	1,641	1,570	1,989	1,663	1,499	1,496	1,311	1,358	1,258	1,387	1,391	1,514	1,447
Black															
All degrees	33,176	34,985	35,330	35,861	33,858	32,185	32,882	37,854	38,721	41,260	45,597	45,923	49,245	51,588	52,957
S&E	NA	NA	NA	1,653	1,766	1,460	1,540	1,631	1,809	1,963	2,069	2,033	2,109	2,214	2,475
Natural sciences	NA	NA	NA	160	198	125	153	149	161	178	206	276	247	259	293
Physical sciences	NA	NA	NA	48	71	45	57	78	71	70	90	103	112	105	126
Biological sciences	NA	NA	NA	93	100	63	71	57	75	93	96	147	114	140	155
Agricultural sciences	NA	NA	NA	19	27	17	25	14	15	15	20	26	21	14	12
Mathematics and computer sciences	NA	NA	NA	938	961	828	876	921	1,093	1,004	1,120	1,060	1,124	1,172	1,492
Mathematics	NA	NA	NA	24	38	25	20	27	27	26	39	45	36	37	33
Computer sciences	NA	NA	NA	914	923	803	856	894	1,066	978	1,081	1,015	1,088	1,135	1,459
Social and behavioral sciences	NA	NA	NA	407	358	387	423	435	420	580	564	549	604	652	581
Psychology	NA	NA	NA	65	73	83	110	103	78	109	149	126	147	126	112
Social sciences	NA	NA	NA	342	285	304	313	332	342	471	415	423	457	526	469
Engineering	NA	NA	NA	148	249	120	88	126	135	201	179	148	134	131	109
Non-S&E	NA	NA	NA	34,208	32,092	30,725	31,342	36,223	36,912	39,297	43,528	43,890	47,136	49,374	50,482
Engineering technologies	1,990	2,022	2,903	3,395	3,100	2,829	2,648	3,030	2,445	2,698	3,197	2,932	2,883	2,899	3,046
Hispanic															
All degrees	19,808	20,710	22,088	22,783	22,804	23,475	24,569	29,019	30,253	33,015	35,557	38,499	39,115	42,784	45,452
S&E	NA	NA	NA	1,380	1,635	1,453	1,289	1,463	1,773	2,152	2,329	2,316	2,310	2,535	2,845
Natural sciences	NA	NA	NA	248	281	236	215	232	238	300	404	425	419	463	496
Physical sciences	NA	NA	NA	60	37	34	41	45	42	52	92	80	109	110	122
Biological sciences	NA	NA	NA	135	153	88	104	130	126	160	203	208	221	276	289
Agricultural sciences	NA	NA	NA	53	91	114	70	57	70	88	109	137	89	77	85
Mathematics and computer sciences	NA	NA	NA	676	620	609	591	677	918	1,086	1,074	1,131	1,031	1,149	1,357
Mathematics	NA	NA	NA	38	39	47	65	55	63	67	85	99	108	110	120
Computer sciences	NA	NA	NA	638	581	562	526	622	855	1,019	989	1,032	923	1,039	1,237
Social and behavioral sciences	NA	NA	NA	330	365	432	385	401	485	613	703	599	728	811	796
Psychology	NA	NA	NA	43	64	123	113	88	116	141	154	193	179	210	180
Social sciences	NA	NA	NA	287	301	309	272	313	369	472	549	406	549	601	616
Engineering	NA	NA	NA	126	369	176	98	153	132	153	148	161	132	112	196
Non-S&E	NA	NA	NA	21,403	21,169	22,022	23,280	27,556	28,480	30,863	33,228	36,183	36,805	40,249	42,607
Engineering technologies	1,644	1,799	2,219	2,084	2,359	2,232	2,298	2,411	2,317	2,398	2,478	2,687	2,644	2,570	2,528

See explanatory notes and SOURCE at end of table.

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Appendix table 2-15.

Earned associate's degrees, by field and race/ethnicity: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
American Indian/Alaskan Native															
All degrees	2,499	2,336	2,584	2,953	3,049	3,102	3,290	3,772	3,874	4,213	4,879	5,352	5,221	5,520	6,161
S&E	NA	NA	NA	163	195	182	202	257	247	315	419	410	464	442	494
Natural sciences	NA	NA	NA	45	49	44	38	66	58	73	125	123	116	124	135
Physical sciences	NA	NA	NA	8	4	2	4	7	5	7	20	23	26	21	33
Biological sciences	NA	NA	NA	8	17	19	13	22	15	25	36	40	42	46	37
Agricultural sciences	NA	NA	NA	29	28	23	21	37	38	41	69	60	48	57	65
Mathematics and computer sciences	NA	NA	NA	56	49	67	84	91	69	116	116	124	136	119	157
Mathematics	NA	NA	NA	4	4	9	14	13	8	15	11	13	9	2	13
Computer sciences	NA	NA	NA	52	45	58	70	78	61	101	105	111	127	117	144
Social and behavioral sciences	NA	NA	NA	51	70	59	68	79	106	118	160	142	201	174	180
Psychology	NA	NA	NA	11	16	13	9	16	31	18	38	35	42	38	37
Social sciences	NA	NA	NA	40	54	46	59	63	75	100	122	107	159	136	143
Engineering	NA	NA	NA	11	27	12	12	21	14	8	18	21	11	25	22
Non-S&E	NA	NA	NA	2,790	2,854	2,920	3,088	3,515	3,627	3,898	4,460	4,942	4,757	5,078	5,667
Engineering technologies	204	191	285	267	219	257	168	232	175	210	263	260	242	211	262
Other/unknown race/ethnicity															
All degrees	1,572	6,096	6,323	25,477	19,745	33,326	36,054	16,737	24,411	22,669	11,855	15,307	11,339	11,351	11,932
S&E	NA	NA	NA	3,184	943	1,191	1,478	751	1,407	1,312	556	515	582	646	917
Natural sciences	NA	NA	NA	530	151	99	168	116	162	184	104	132	161	152	148
Physical sciences	NA	NA	NA	144	25	37	48	35	113	125	29	51	68	62	62
Biological sciences	NA	NA	NA	270	41	57	54	26	NA	32	40	42	65	67	61
Agricultural sciences	NA	NA	NA	116	85	5	66	55	49	27	35	39	28	23	25
Mathematics and computer sciences	NA	NA	NA	930	322	692	765	338	836	722	241	205	224	282	311
Mathematics	NA	NA	NA	96	24	29	30	17	22	10	17	15	15	21	27
Computer sciences	NA	NA	NA	834	298	663	735	321	814	712	224	190	209	261	284
Social and behavioral sciences	NA	NA	NA	686	251	239	332	168	326	343	134	111	144	170	415
Psychology	NA	NA	NA	162	55	8	19	20	19	25	33	24	33	45	253
Social sciences	NA	NA	NA	524	196	231	313	148	307	318	101	87	111	125	162
Engineering	NA	NA	NA	1,038	219	161	213	129	83	63	77	67	53	42	43
Non-S&E	NA	NA	NA	22,293	18,802	32,135	34,576	15,986	23,004	21,357	11,299	14,792	10,757	10,705	11,015
Engineering technologies	123	1,500	2,754	2,649	1,809	5,082	5,960	1,108	3,021	2,987	822	1,541	625	681	611
Foreign citizen															
All degrees	3,331	4,554	6,645	6,426	4,485	5,969	5,937	6,977	8,027	9,024	10,169	9,911	10,022	10,599	12,045
S&E	NA	NA	NA	616	408	461	362	368	520	637	707	707	718	744	940
Natural sciences	NA	NA	NA	74	81	97	75	73	109	138	157	177	164	191	209
Physical sciences	NA	NA	NA	20	34	39	33	30	44	67	56	79	86	94	75
Biological sciences	NA	NA	NA	20	35	35	24	22	33	38	56	77	60	78	82
Agricultural sciences	NA	NA	NA	34	12	23	18	21	32	33	45	21	18	19	52
Mathematics and computer sciences	NA	NA	NA	313	177	205	169	171	251	284	282	298	291	303	380
Mathematics	NA	NA	NA	39	12	18	18	16	38	47	39	39	48	44	49
Computer sciences	NA	NA	NA	274	165	187	151	155	213	237	243	259	243	259	331
Social and behavioral sciences	NA	NA	NA	73	30	76	48	56	80	137	179	156	193	183	218
Psychology	NA	NA	NA	14	8	27	7	8	13	17	24	19	32	39	58
Social sciences	NA	NA	NA	59	22	49	41	48	67	120	155	137	161	144	160
Engineering	NA	NA	NA	156	120	83	70	68	80	78	89	76	70	67	133
Non-S&E	NA	NA	NA	5,810	4,077	5,508	5,575	6,609	7,507	8,387	9,462	9,204	9,304	9,855	11,105
Engineering technologies	393	585	1,055	680	575	533	467	526	504	380	414	412	332	446	712

NOTES: Appendix tables with degree data by sex do not match precisely the degree data by race/ethnicity in any field at the associate, bachelor's, or master's level. Physical sciences include physics, chemistry, astronomy, and earth, atmospheric, and ocean sciences.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Earned Degrees and Completion Surveys, unpublished tabulations; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS), WebCASPAR Data System. Available at <http://www.nsf.gov/sbe/srs/stats.htm>.

Appendix table 2-16.
Earned bachelor's degrees, by field and sex: 1975–98 (selected years)

Field	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1994	1995	1996	1997	1998
Total															
All degrees	931,663	928,228	931,340	946,877	980,679	990,877	1,003,532	1,030,171	1,107,997	1,179,278	1,183,141	1,174,436	1,179,815	1,186,589	1,199,579
Total S&E.....	313,555	303,798	303,162	306,792	317,571	332,273	331,526	322,821	337,675	366,035	373,261	378,148	384,674	388,482	390,618
Natural sciences	87,199	93,179	90,120	84,062	78,906	75,158	68,724	62,860	65,189	77,312	83,791	90,845	98,322	102,230	104,673
Physical sciences	16,001	16,937	17,257	17,446	16,197	16,270	15,464	14,148	13,678	14,188	14,655	14,897	15,396	15,264	15,273
Earth/atmospheric/ocean sciences	4,877	5,653	6,082	6,694	7,298	7,576	4,689	3,181	2,728	3,503	3,868	4,478	4,457	4,466	4,321
Biological and agricultural	66,321	70,589	66,781	59,922	55,411	51,312	48,571	45,531	48,783	59,621	65,268	71,470	78,469	82,500	85,079
Mathematics and computer sciences	23,385	20,729	20,670	26,406	37,344	54,510	56,442	46,277	40,194	39,433	39,185	38,620	37,621	38,116	39,768
Mathematics	18,346	14,303	11,901	11,173	12,662	15,389	16,515	15,314	14,784	14,853	14,632	13,851	13,076	12,723	12,094
Computer sciences	5,039	6,426	8,769	15,233	24,682	39,121	39,927	30,963	25,410	24,580	24,553	24,769	24,545	25,393	27,674
Social and behavioral sciences	163,147	148,533	138,903	132,607	128,651	125,033	131,935	146,737	170,105	186,585	187,273	185,312	185,617	185,784	185,263
Psychology	51,436	47,794	43,012	41,364	40,825	40,237	43,195	48,954	58,893	67,251	69,768	72,601	73,828	74,734	74,457
Social sciences	111,711	100,739	95,891	91,243	87,826	84,796	88,740	97,783	111,212	119,334	117,505	112,711	111,789	111,050	110,806
Engineering	39,824	41,357	53,469	63,717	72,670	77,572	74,425	66,947	62,187	62,705	63,012	63,371	63,114	62,352	60,914
Chemical	3,420	3,986	6,442	7,639	8,550	8,941	6,114	4,187	3,728	4,899	5,636	6,391	6,708	6,977	6,721
Civil	8,289	8,898	10,583	11,331	10,747	9,730	8,746	8,015	8,083	9,788	10,603	11,329	12,053	12,010	11,522
Electrical	10,246	10,018	12,440	15,040	19,205	23,668	26,791	24,318	21,520	19,598	18,241	17,579	16,667	16,434	16,322
Industrial	2,583	2,264	2,804	3,878	3,824	4,009	4,313	4,121	3,820	3,584	3,453	3,519	3,727	3,997	3,988
Mechanical	7,089	7,927	10,360	13,573	16,031	17,200	15,723	15,217	14,263	14,708	15,297	15,141	14,509	13,806	13,363
Other	8,197	8,264	10,840	12,256	14,313	14,024	12,738	11,089	10,773	10,128	9,782	9,412	9,450	9,128	8,998
Engineering technologies	8,589	9,864	10,906	13,567	18,602	20,476	20,577	20,098	18,294	17,022	16,703	16,607	16,228	14,631	14,825
Male															
All degrees	508,424	499,121	481,394	474,336	483,395	486,660	485,003	487,566	508,952	537,536	537,061	531,146	528,000	525,282	525,714
Total S&E.....	210,741	198,805	193,247	190,977	194,380	203,402	199,981	189,338	189,328	200,315	202,284	202,217	203,341	201,471	200,221
Natural sciences	63,977	65,378	60,047	53,430	48,168	45,321	40,589	36,009	36,206	42,316	45,600	48,474	51,766	52,273	52,236
Physical sciences	12,990	13,560	13,358	13,137	11,586	11,434	10,792	9,777	9,253	9,424	9,588	9,605	9,694	9,382	9,279
Earth/atmospheric/ocean sciences	4,050	4,479	4,695	5,028	5,450	5,715	3,629	2,380	1,946	2,453	2,665	2,954	2,972	2,924	2,722
Biological and agricultural	46,937	47,339	41,994	35,265	31,132	28,172	26,168	23,852	25,007	30,439	33,347	35,915	39,100	39,967	40,235
Mathematics and computer sciences	14,729	13,241	13,249	16,672	22,802	32,985	34,871	29,682	25,700	25,483	25,397	25,066	24,857	25,324	26,670
Mathematics	10,646	8,354	6,943	6,392	7,112	8,295	8,833	8,264	7,804	7,854	7,864	7,360	7,084	6,834	6,435
Computer sciences	4,083	4,887	6,306	10,280	15,690	24,690	26,038	21,418	17,896	17,629	17,533	17,706	17,773	18,490	20,235
Social and behavioral sciences	93,056	80,873	71,363	64,221	60,392	58,770	61,500	66,888	74,900	79,792	78,678	76,256	74,920	72,992	71,740
Psychology	24,333	20,692	16,649	14,447	13,228	12,815	13,399	14,291	16,155	18,029	18,749	19,638	19,965	19,491	19,057
Social sciences	68,723	60,181	54,714	49,774	47,164	45,955	48,101	52,597	58,745	61,763	59,929	56,618	54,955	53,501	52,683
Engineering	38,979	39,313	48,588	56,654	63,018	66,326	63,021	56,759	52,522	52,724	52,609	52,421	51,798	50,882	49,575
Chemical	3,273	3,534	5,387	6,274	6,761	6,848	4,574	3,017	2,564	3,335	3,953	4,367	4,537	4,701	4,525
Civil	8,116	8,413	9,534	10,100	9,263	8,388	7,550	6,841	6,803	8,009	8,619	9,031	9,629	9,441	8,946
Electrical	10,116	9,750	11,781	13,940	17,283	20,936	23,227	21,130	18,757	17,339	15,990	15,409	14,695	14,416	14,310
Industrial	2,524	2,115	2,376	3,111	2,824	2,842	2,929	2,860	2,723	2,547	2,439	2,493	2,630	2,918	2,968
Mechanical	7,005	7,685	9,740	12,422	14,546	15,399	13,996	13,537	12,673	13,076	13,554	13,441	12,773	12,171	11,727
Other	7,945	7,816	9,770	10,807	12,341	11,913	10,745	9,374	9,002	8,418	8,054	7,680	7,534	7,235	7,099
Engineering technologies	8,054	9,173	9,942	12,034	16,473	18,224	18,429	17,999	16,329	15,114	14,877	14,704	14,382	12,925	12,993

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-16.

Earned bachelor's degrees, by field and sex: 1975–98 (selected years)

Field	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1994	1995	1996	1997	1998
Female															
All degrees	423,239	429,107	449,946	472,541	497,284	504,217	518,529	542,605	599,045	641,742	646,080	643,290	651,815	661,307	673,865
Total S&E	102,814	104,993	109,915	115,815	123,191	128,871	131,545	133,483	148,347	165,720	170,977	175,931	181,333	187,011	190,397
Natural sciences	23,222	27,801	30,073	30,632	30,738	29,837	28,135	26,851	28,983	34,996	38,191	42,371	46,556	49,957	52,437
Physical sciences	3,011	3,377	3,899	4,309	4,611	4,836	4,672	4,371	4,425	4,764	5,067	5,292	5,702	5,882	5,994
Earth/atmospheric/ocean sciences	827	1,174	1,387	1,666	1,848	1,861	1,060	801	782	1,050	1,203	1,524	1,485	1,542	1,599
Biological and agricultural	19,384	23,250	24,787	24,657	24,279	23,140	22,403	21,679	23,776	29,182	31,921	35,555	39,369	42,533	44,844
Mathematics and computer sciences	8,656	7,488	7,421	9,734	14,542	21,525	21,571	16,595	14,494	13,950	13,788	13,554	12,764	12,792	13,098
Mathematics	7,700	5,949	4,958	4,781	5,550	7,094	7,682	7,050	6,980	6,999	6,768	6,491	5,992	5,889	5,659
Computer sciences	956	1,539	2,463	4,953	8,992	14,431	13,889	9,545	7,514	6,951	7,020	7,063	6,772	6,903	7,439
Social and behavioral sciences	70,091	67,660	67,540	68,386	68,259	66,263	70,435	79,849	95,205	106,793	108,595	109,056	110,697	112,792	113,523
Psychology	27,103	27,102	26,363	26,917	27,597	27,422	29,796	34,663	42,738	49,222	51,019	52,963	53,863	55,243	55,400
Social sciences	42,988	40,558	41,177	41,469	40,662	38,841	40,639	45,186	52,467	57,571	57,576	56,093	56,834	57,549	58,123
Engineering	845	2,044	4,881	7,063	9,652	11,246	11,404	10,188	9,665	9,981	10,403	10,950	11,316	11,470	11,339
Chemical	147	452	1,055	1,365	1,789	2,093	1,540	1,170	1,164	1,564	1,683	2,024	2,171	2,276	2,196
Civil	173	485	1,049	1,231	1,484	1,342	1,196	1,174	1,280	1,779	1,984	2,298	2,424	2,569	2,576
Electrical	130	268	659	1,100	1,922	2,732	3,564	3,188	2,763	2,259	2,251	2,170	1,972	2,018	2,012
Industrial	59	149	428	767	1,000	1,167	1,384	1,261	1,097	1,037	1,014	1,026	1,097	1,079	1,020
Mechanical	84	242	620	1,151	1,485	1,801	1,727	1,680	1,590	1,632	1,743	1,700	1,736	1,635	1,636
Other	252	448	1,070	1,449	1,972	2,111	1,993	1,715	1,771	1,710	1,728	1,732	1,916	1,893	1,899
Engineering technologies	535	691	964	1,533	2,129	2,252	2,148	2,099	1,965	1,908	1,826	1,903	1,846	1,706	1,832

NOTES: Appendix tables with degree data by sex do not match precisely the degree data by race/ethnicity in any field at the associate, bachelor's, or master's level. Physical sciences include physics, chemistry, and astronomy.

SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Earned Degrees and Completion Surveys, unpublished tabulations; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS), WebCASPAR Database System. Available at <<http://www.nsf.gov/sbe/srs/stats.htm>>.

Appendix table 2-17.

Earned bachelor's degrees, by field, races/ethnicity, and citizenship: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1991	1993	1994	1995	1996	1997	1998
	Total												
All degrees	928,228	931,340	946,877	990,877	1,003,532	1,030,171	1,107,997	1,179,278	1,183,141	1,174,436	1,179,815	1,186,589	1,199,579
Total S&E	337,834	334,632	337,739	342,970	343,070	337,431	356,785	388,435	395,380	399,809	405,921	408,749	411,286
Natural sciences	98,342	96,186	90,254	75,670	68,929	63,073	65,401	77,395	83,903	91,026	98,520	102,457	104,852
Physical sciences	22,618	23,363	24,175	23,847	20,155	17,329	16,407	17,691	18,525	19,375	19,853	19,730	19,594
Biological sciences	54,193	49,576	44,046	39,405	39,047	36,949	40,351	47,877	52,213	56,804	61,998	65,061	67,047
Agricultural sciences	21,531	23,247	22,033	12,418	9,727	8,795	8,643	11,827	13,165	14,847	16,669	17,666	18,211
Mathematics and computer sciences	20,729	20,670	26,406	54,388	56,442	46,277	40,194	39,347	38,889	38,421	37,606	37,844	39,404
Mathematics	14,303	11,901	11,173	15,267	16,515	15,314	14,784	14,870	14,431	13,759	13,201	12,869	12,363
Computer sciences	6,426	8,769	15,233	39,121	39,927	30,963	25,410	24,477	24,458	24,662	24,405	24,975	27,041
Social and behavioral sciences	169,086	154,976	145,684	135,341	143,276	161,134	189,004	209,023	209,626	207,032	206,729	206,142	206,160
Psychology	47,794	43,012	41,364	40,237	43,195	48,954	58,893	67,251	69,768	72,601	73,828	74,734	74,457
Social sciences	121,292	111,964	104,320	95,104	100,081	112,180	130,111	141,772	139,858	134,431	132,901	131,408	131,703
Engineering	49,677	62,800	75,395	77,571	74,423	66,947	62,186	62,670	62,962	63,330	63,066	62,306	60,870
Non-S&E	590,394	596,708	609,138	647,907	660,462	692,740	751,212	790,843	787,761	774,627	773,894	777,840	788,293
Engineering technologies	NA	NA	NA	20,533	20,577	20,098	18,294	16,987	16,654	16,542	16,156	14,584	14,747
U.S. citizen/permanent resident													
All degrees	912,484	913,487	924,246	961,619	974,940	1,003,714	1,078,340	1,146,907	1,148,914	1,137,424	1,142,028	1,147,815	1,160,692
Total S&E	329,537	324,834	324,773	328,899	329,393	325,108	344,061	374,633	381,451	385,055	391,074	393,952	396,558
Natural sciences	96,300	94,125	88,003	73,538	67,143	61,329	63,460	75,065	81,789	88,764	96,197	100,071	102,461
Physical sciences	22,047	22,668	23,443	23,067	19,520	16,724	15,799	16,927	17,812	18,652	19,167	19,059	18,919
Biological sciences	53,165	48,689	43,143	38,490	38,185	36,076	39,288	46,660	51,058	55,523	60,633	63,601	65,625
Agricultural sciences	21,088	22,768	21,417	11,981	9,438	8,529	8,373	11,478	12,919	14,589	16,397	17,411	17,917
Mathematics and computer sciences	20,146	19,929	25,173	51,509	53,209	43,599	37,579	36,591	36,054	35,533	34,868	35,319	36,819
Mathematics	13,985	11,536	10,717	14,504	15,860	14,771	14,206	14,318	13,869	13,166	12,643	12,343	11,907
Computer sciences	6,161	8,393	14,456	37,005	37,349	28,828	23,373	22,273	22,185	22,367	22,225	22,976	24,912
Social and behavioral sciences	166,988	152,744	143,165	132,471	140,507	158,305	185,418	204,812	205,186	202,238	201,705	201,053	201,051
Psychology	47,325	42,567	40,878	39,694	42,701	48,443	58,202	66,421	68,913	71,659	72,812	73,685	73,287
Social sciences	119,663	110,177	102,287	92,777	97,806	109,862	127,216	138,391	136,273	130,579	128,893	127,368	127,764
Engineering	46,103	58,036	68,432	71,381	68,534	61,875	57,604	58,165	58,422	58,520	58,304	57,509	56,227
Non-S&E	582,947	588,653	599,473	632,720	645,547	678,606	734,279	772,274	767,463	752,369	750,954	753,863	764,134
Engineering technologies	NA	NA	NA	19,256	19,591	19,439	17,582	16,546	16,161	15,992	15,571	14,027	14,157
White													
All degrees	807,857	802,665	807,509	826,356	819,477	840,326	892,363	931,603	918,124	892,785	884,128	877,759	878,018
Total S&E	292,802	287,126	284,166	281,394	272,090	266,862	278,190	297,171	297,616	294,773	295,082	292,252	290,207
Natural sciences	88,308	85,403	78,778	63,592	55,898	50,580	51,113	59,577	64,291	68,700	73,414	75,761	76,252
Physical sciences	20,417	20,958	21,249	20,541	16,653	14,238	13,145	13,941	14,616	14,952	15,088	14,920	14,566
Biological sciences	47,695	42,745	37,292	31,818	30,549	28,404	30,264	35,080	37,942	40,628	43,680	45,325	45,854
Agricultural sciences	20,196	21,700	20,237	11,233	8,696	7,938	7,704	10,556	11,733	13,120	14,646	15,516	15,832
Mathematics and computer sciences	18,110	17,633	22,013	43,484	42,446	33,998	28,998	27,824	26,905	25,875	25,293	25,110	25,715
Mathematics	12,602	10,229	9,447	12,163	13,265	12,287	11,649	11,669	11,089	10,343	9,823	9,484	9,045
Computer sciences	5,508	7,404	12,566	31,321	29,181	21,711	17,349	16,155	15,816	15,532	15,470	15,626	16,670
Social and behavioral sciences	144,312	131,439	122,519	113,326	117,255	132,203	152,917	164,917	161,733	156,472	153,277	149,757	147,707
Psychology	41,494	36,648	34,718	33,959	35,761	40,506	48,134	53,763	54,870	55,914	55,905	55,346	54,225
Social sciences	102,818	94,791	87,801	79,367	81,494	91,697	104,783	111,154	106,863	100,558	97,372	94,411	93,482
Engineering	42,072	52,651	60,856	60,992	56,491	50,081	45,162	44,853	44,687	43,726	43,098	41,624	40,533
Non-S&E	515,055	515,539	523,343	544,962	547,387	573,464	614,173	634,432	620,508	598,012	589,046	585,507	587,811
Engineering technologies	NA	NA	NA	16,673	16,541	16,156	14,279	13,245	12,909	12,616	12,032	10,946	10,977

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-17.

Earned bachelor's degrees, by field, race/ethnicity, and citizenship: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1991	1993	1994	1995	1996	1997	1998
Asian/Pacific Islander													
All degrees	13,907	15,542	18,908	25,562	31,921	37,573	41,725	50,587	54,675	59,295	63,117	67,358	69,988
Total S&E	6,203	7,171	9,145	13,323	16,934	19,138	20,552	24,504	26,420	29,128	31,031	33,139	34,568
Natural sciences	1,935	2,227	2,406	2,880	3,641	3,973	4,670	6,364	7,228	8,677	9,829	10,556	10,987
Physical sciences	377	439	599	763	894	922	983	1,098	1,096	1,347	1,559	1,620	1,676
Biological sciences	1,316	1,464	1,493	1,952	2,565	2,907	3,559	5,103	5,959	7,043	7,958	8,535	8,867
Agricultural sciences	242	324	314	165	182	144	128	163	173	287	312	401	444
Mathematics and computer sciences	479	587	1,061	2,929	3,489	3,287	2,925	3,160	3,173	3,330	3,383	3,644	4,014
Mathematics	316	324	392	885	1,034	1,019	915	915	926	965	935	877	856
Computer sciences	163	263	669	2,044	2,455	2,268	2,010	2,245	2,247	2,365	2,448	2,767	3,158
Social and behavioral sciences	2,578	2,499	2,612	3,032	4,214	5,803	6,737	8,573	9,503	10,336	11,020	11,854	12,565
Psychology	807	781	843	845	1,154	1,575	1,885	2,538	2,777	3,331	3,666	4,067	4,267
Social sciences	1,771	1,718	1,769	2,187	3,060	4,228	4,852	6,035	6,726	7,005	7,354	7,787	8,298
Engineering	1,211	1,858	3,066	4,482	5,590	6,075	6,220	6,407	6,516	6,785	6,799	7,085	7,002
Non-S&E	7,704	8,371	9,763	12,239	14,987	18,435	21,173	26,083	28,255	30,167	32,086	34,219	35,420
Engineering technologies	NA	NA	NA	542	807	839	768	768	720	727	730	473	471
Black													
All degrees	58,700	60,301	60,729	57,563	55,103	56,837	65,009	76,667	82,316	85,287	89,554	92,067	95,878
Total S&E	19,552	18,827	18,895	17,040	17,230	17,385	19,987	24,421	26,289	27,528	29,055	30,444	31,398
Natural sciences	3,416	3,541	3,561	3,096	2,870	2,756	3,026	3,794	4,169	4,528	5,274	5,620	6,103
Physical sciences	692	704	911	830	823	697	753	836	921	1,034	1,100	1,110	1,127
Biological sciences	2,415	2,491	2,270	2,047	1,890	1,916	2,111	2,739	2,980	3,231	3,811	4,123	4,550
Agricultural sciences	309	346	380	219	157	143	162	219	268	263	363	387	426
Mathematics and computer sciences	1,073	1,159	1,371	2,913	3,654	3,249	2,808	3,178	3,390	3,493	3,396	3,441	3,610
Mathematics	712	652	585	770	834	792	811	965	992	995	981	1,071	1,030
Computer sciences	361	507	786	2,143	2,820	2,457	1,997	2,213	2,398	2,498	2,415	2,370	2,580
Social and behavioral sciences	13,678	12,352	11,514	8,992	8,391	9,313	11,924	14,872	16,071	16,662	17,385	18,307	18,667
Psychology	3,221	3,218	3,308	2,667	2,451	2,743	3,688	4,618	5,236	5,741	6,028	6,647	6,852
Social sciences	10,457	9,134	8,206	6,325	5,940	6,570	8,236	10,254	10,835	10,921	11,357	11,660	11,815
Engineering	1,385	1,775	2,449	2,039	2,315	2,067	2,229	2,577	2,659	2,845	3,000	3,076	3,018
Non-S&E	39,148	41,474	41,834	40,523	37,873	39,452	45,022	52,246	56,027	57,759	60,499	61,623	64,480
Engineering technologies	NA	NA	NA	1,277	1,269	1,208	1,227	1,132	1,249	1,319	1,370	1,423	1,369
Hispanic													
All degrees	27,043	29,719	33,167	36,391	38,196	41,361	49,027	57,845	62,683	66,691	71,015	74,938	78,125
Total S&E	9,628	10,432	11,312	12,031	12,419	13,327	15,351	18,442	20,529	22,190	23,791	25,266	26,725
Natural sciences	2,271	2,634	2,958	2,979	2,964	2,849	3,010	3,468	3,970	4,276	4,899	5,207	5,829
Physical sciences	484	495	617	660	585	563	533	599	733	800	872	853	914
Biological sciences	1,559	1,825	1,951	2,069	2,146	2,090	2,264	2,652	2,901	3,090	3,521	3,793	4,283
Agricultural sciences	228	314	390	250	233	196	213	217	336	386	506	561	632
Mathematics and computer sciences	435	495	688	1,380	1,696	1,568	1,695	1,566	1,678	1,843	1,865	1,848	2,052
Mathematics	321	288	275	335	321	373	480	470	543	536	585	581	642
Computer sciences	114	207	413	1,045	1,375	1,195	1,215	1,096	1,135	1,307	1,280	1,267	1,410
Social and behavioral sciences	5,632	5,748	5,846	5,485	5,205	6,349	8,080	10,447	11,738	12,420	13,296	14,086	14,719
Psychology	1,608	1,737	1,813	1,734	1,702	2,152	2,746	3,587	3,990	4,543	5,036	5,282	5,509
Social sciences	4,024	4,011	4,033	3,751	3,503	4,197	5,334	6,860	7,748	7,877	8,260	8,804	9,210
Engineering	1,290	1,555	1,820	2,187	2,554	2,561	2,566	2,961	3,143	3,651	3,731	4,125	4,125
Non-S&E	17,415	19,287	21,855	24,360	25,777	28,034	33,676	39,403	42,154	44,501	47,224	49,672	51,400
Engineering technologies	NA	NA	NA	525	664	634	731	853	813	883	988	722	738

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-17.

Earned bachelor's degrees, by field, race/ethnicity, and citizenship: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1991	1993	1994	1995	1996	1997	1998
American Indian/Alaskan Native													
All degrees	3,328	3,410	3,593	4,246	3,866	3,967	4,486	5,574	6,064	6,454	6,813	7,238	7,706
Total S&E	1,166	1,194	1,206	1,384	1,290	1,238	1,344	1,819	2,004	2,126	2,268	2,419	2,533
Natural sciences	338	296	298	313	259	265	298	368	438	507	559	587	658
Physical sciences	68	63	65	98	72	62	69	93	83	98	104	100	106
Biological sciences	157	149	137	161	144	145	176	211	246	285	316	339	399
Agricultural sciences	113	84	96	54	43	58	53	64	109	124	139	148	153
Mathematics and computer sciences	41	52	39	198	164	143	123	136	137	168	142	153	172
Mathematics	26	41	18	59	52	53	43	55	59	58	53	56	66
Computer sciences	15	11	21	139	112	90	80	81	78	110	89	97	106
Social and behavioral sciences	652	682	674	664	657	653	765	1,139	1,211	1,230	1,324	1,417	1,450
Psychology	167	177	196	201	180	208	235	335	394	407	470	496	515
Social sciences	485	505	478	463	477	445	530	804	817	823	854	921	935
Engineering	135	164	195	209	210	177	158	176	218	221	243	262	253
Non-S&E	2,162	2,216	2,387	2,862	2,576	2,729	3,142	3,755	4,060	4,328	4,545	4,819	5,173
Engineering technologies	NA	NA	NA	103	78	105	75	111	98	115	112	99	103
Other/unknown race/ethnicity													
All degrees	1,649	1,850	340	11,501	26,377	23,650	25,730	24,631	25,052	26,912	27,401	28,455	30,977
Total S&E	186	84	49	3,727	9,430	7,158	8,637	8,276	8,593	9,310	9,847	10,432	11,127
Natural sciences	32	24	2	678	1,511	906	1,343	1,494	1,693	2,076	2,222	2,340	2,632
Physical sciences	9	9	2	175	493	242	316	360	363	421	444	456	530
Biological sciences	23	15	0	443	891	614	914	875	1,030	1,246	1,347	1,486	1,672
Agricultural sciences	0	0	0	60	127	50	113	259	300	409	431	398	430
Mathematics and computer sciences	8	3	1	605	1,760	1,354	1,030	727	771	824	789	1,123	1,256
Mathematics	8	2	0	292	354	247	308	244	260	269	266	274	268
Computer sciences	0	1	1	313	1,406	1,107	722	483	511	555	523	849	988
Social and behavioral sciences	136	24	0	972	4,785	3,984	4,995	4,864	4,930	5,118	5,403	5,632	5,943
Psychology	28	6	0	288	1,453	1,259	1,514	1,580	1,646	1,723	1,707	1,847	1,919
Social sciences	108	18	0	684	3,332	2,725	3,481	3,284	3,284	3,395	3,696	3,785	4,024
Engineering	10	33	46	1,472	1,374	914	1,269	1,191	1,199	1,292	1,433	1,337	1,296
Non-S&E	1,463	1,766	291	7,774	16,947	16,492	17,093	16,355	16,459	17,602	17,554	18,023	19,850
Engineering technologies	NA	NA	NA	136	232	497	502	437	372	332	339	364	499
Foreign citizen													
All degrees	15,744	17,853	22,631	29,258	28,592	26,457	29,657	32,371	34,227	37,012	37,787	38,774	38,887
Total S&E	8,297	9,798	12,966	14,071	13,677	12,323	12,724	13,802	13,929	14,754	14,847	14,797	14,728
Natural sciences	2,042	2,061	2,251	2,132	1,786	1,744	1,941	2,330	2,114	2,262	2,323	2,386	2,391
Physical sciences	571	695	732	780	635	605	608	764	713	723	686	671	675
Biological sciences	1,028	887	903	915	862	873	1,063	1,217	1,155	1,281	1,365	1,460	1,422
Agricultural sciences	443	479	616	437	289	266	270	349	246	258	272	255	294
Mathematics and computer sciences	583	741	1,233	2,879	3,233	2,678	2,615	2,756	2,835	2,888	2,738	2,525	2,585
Mathematics	318	365	456	763	655	543	578	552	562	593	558	526	456
Computer sciences	265	376	777	2,116	2,578	2,135	2,037	2,204	2,273	2,295	2,180	1,999	2,129
Social and behavioral sciences	2,098	2,232	2,519	2,870	2,769	2,829	3,586	4,211	4,440	4,794	5,024	5,089	5,109
Psychology	469	445	486	543	494	511	691	830	855	942	1,016	1,049	1,170
Social sciences	1,629	1,787	2,033	2,327	2,275	2,318	2,895	3,381	3,585	3,852	4,008	4,040	3,939
Engineering	3,574	4,764	6,963	6,190	5,889	5,072	4,582	4,505	4,540	4,810	4,762	4,797	4,643
Non-S&E	7,447	8,055	9,665	15,187	14,915	14,134	16,933	18,569	20,298	22,258	22,940	23,977	24,159
Engineering technologies	NA	NA	NA	1,277	986	659	712	441	493	550	585	557	590

NOTES: Appendix tables with degree data by sex do not match precisely the degree data by race/ethnicity in any field at the associate, bachelor's, or master's level. Physical sciences include physics, chemistry, astronomy, and earth, atmospheric, and ocean sciences.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1990–98* NSF 01-327 (Arlington, VA, 2000) and previous editions.

Appendix table 2-18.

**Ratio of first university degrees and science and engineering degrees to 24-year-old population in selected locations, by region:
1999 or most recent year**

Region/location	All first university degrees	Total science & engineering	S&E degree fields			Number of 24-year-olds	Ratio of ^a		
			Natural sciences ^b	Social and behavioral sciences ^c	Engineering		First univ. degrees	NS&E degrees	Social and behavioral sciences degrees
Total, all regions^d	6,781,885	2,649,460	917,721	872,629	868,340	70,848,651			
Asia									
Total, selected locations ^d	2,306,256	1,119,405	309,161	384,770	425,474	44,243,809	5.2	1.7	0.9
China	440,935	322,769	59,804	67,611	195,354	20,047,600	2.2	1.3	0.3
Hong Kong	11,362	5,425	2,370	1,233	1,822	93,000	12.2	4.5	1.3
India	750,000	176,036	147,036	NA	29,000	15,545,800	4.8	1.1	NA
Indonesia	144,314	97,095	10,711	65,740	20,644	3,975,065	3.6	0.8	1.7
Japan	532,436	350,535	32,718	214,377	103,440	1,771,600	30.1	7.7	12.1
Malaysia	10,511	4,760	1,685	2,198	877	331,600	3.2	0.8	0.7
Singapore	5,599	5,599	2,103	1,820	1,676	48,600	11.5	7.8	3.7
South Korea	204,390	91,296	29,527	16,624	45,145	826,850	24.7	9.0	2.0
Taiwan	87,421	34,722	12,911	5,173	16,638	385,894	22.7	7.7	1.3
Thailand	119,288	31,168	10,296	9,994	10,878	1,217,800	9.8	1.7	0.8
Middle East									
Total, selected locations ^d	293,967	79,079	38,403	18,331	26,099	3,874,135	7.6	1.7	0.5
Egypt ^e	85,608	13,578	6,710	1,437	5,431	976,200	8.8	1.2	0.1
Iran	49,296	18,274	6,364	4,330	7,580	1,196,600	4.1	1.2	0.4
Israel	24,319	7,317	2,895	6,391	1,785	109,000	22.3	4.3	5.9
Jordan	12,633	3,539	1,753	986	800	80,400	15.7	3.2	1.2
Kazakhstan	45,536	13,252	6,779	952	5,521	290,600	15.7	4.2	0.3
Morocco	23,007	9,512	6,584	2,647	281	498,122	4.6	1.4	0.5
Saudi Arabia	26,641	5,879	4,201	828	850	301,200	8.8	1.7	0.3
Syria	16,600	4,530	1,398	NA	3,132	257,600	6.4	1.8	NA
Tunisia	10,327	3,198	1,719	760	719	164,413	6.3	1.5	0.5
Sub-Saharan Africa									
Total, selected locations ^d	37,985	12,890	3,924	7,156	1,810	1,931,824	2.0	0.3	0.4
Ethiopia	2,440	966	488	240	238	928,214	0.3	0.1	0.0
South Africa	32,957	10,920	2,937	6,494	1,489	683,472	4.8	0.6	1.0
Uganda	2,588	1,004	499	422	83	320,138	0.8	0.2	0.1
Europe									
Total, selected locations ^d	2,118,553	799,921	327,583	196,230	276,108	9,844,745	21.5	6.1	2.0
European Union	1,908,967	439,171	182,089	122,390	134,692	4,903,035	22.4	6.5	2.5
Austria (long)	13,885	3,998	1,637	893	1,468	96,400	14.4	3.2	0.9
Belgium (long)	13,107	3,797	1661	865	1,271	127,352	10.3	2.3	0.7
Denmark (short)	11,951	4,962	2,262	1,925	775	68,815	17.4	4.4	2.8
Finland (short and long)	20,954	7,794	2,142	1,488	4,164	63,468	33.0	9.9	2.3
France (long)	77,261	79,459	38,626	18,005	22,828	790,168	9.8	7.8	2.3
Germany (short)	70,126	41,094	5,970	13,802	21,322	919,144	21.4	6.6	4.2
Germany (long)	127,025	57,987	21,955	24,691	11,341				
Greece (long)	18,556	4,576	2,570	221	1,785	156,000	11.9	2.8	0.1
Ireland (short and long)	15,454	4,892	2,860	741	1,291	63,637	24.3	6.5	1.2
Italy (short and long)	132,968	46,282	17,865	12,703	15,714	789,136	16.8	4.3	1.6
The Netherlands (long)	75,173	20,448	6,114	7,160	7,174	197,678	38.0	6.7	3.6
Portugal (short)	2,587	425	70	32	323	160,200	16.3	2.8	2.3
Portugal (long)	23,482	7,823	1,895	3,685	2,243				
Spain (short and long)	207,898	53,660	24,266	13,142	16,252	647,240	32.1	6.3	2.0
Sweden (short and long)	29,787	9,597	2,483	2,385	4,729	104,967	28.4	6.9	2.3
United Kingdom (short) ^f	258,753	92,377	49,713	20,652	22,012	718,830	36.0	10.0	2.9

See explanatory notes, if any, and SOURCE at end of table

Appendix table 2-18.

**Ratio of first university degrees and science and engineering degrees to 24-year-old population in selected locations, by region:
1999 or most recent year**

Region/country	All first university degrees	Total science & engineering	S&E degree fields			Number of 24-year-olds	Ratio of ^a		
			Natural sciences ^b	Social and behavioral sciences ^c	Engineering		First univ. degrees	NS&E degrees	Social and behavioral sciences degrees
European Free Trade Assoc.	52,714	10,960	3,446	2,755	4,759	141,264	37.3	5.8	2.0
Norway (short)	30,600	4,063	642	904	2,517	59,927	57.7	7.2	1.5
Norway (long)	3,468	1,722	1075	605	42				
Switzerland (short and long)	18,646	5,175	1729	1246	2,200	82,264	22.7	4.8	1.5
Central & Eastern Europe	966,872	349,790	142,048	71,085	136,657	4,800,446	20.1	5.8	1.5
Albania (all) ^d	3,845	1,346	1,006	169	171	62,800	6.1	1.9	0.3
Bulgaria	28,171	7,151	959	1,281	4,911	122,900	22.9	4.8	1.0
Croatia	7,679	2,746	780	417	1,549	63,800	12.0	3.7	0.7
Czech Republic (long)	18,799	5,900	2,099	458	3,343	173,800	10.8	3.1	0.3
Estonia	2,853	852	309	254	289	22,800	12.5	2.6	1.1
Georgia	18,381	9,076	4,785	1,021	3,270	73,275	25.1	11.0	1.4
Hungary (short and long)	37,988	9,089	3,001	1,792	4,296	156,000	24.4	4.7	1.1
Latvia	6,797	1,777	953	224	600	36,700	18.5	4.2	0.6
Lithuania	8,760	2,696	974	338	1,384	54,400	16.1	4.3	0.6
Poland (short)	147,536	43,304	7,544	14,142	21,618	599,490	24.6	4.9	2.4
Russia	554,814	216,017	101,320	32,288	82,409	2,163,090	25.6	8.5	1.5
Slovakia	11,636	4,693	816	253	3,624	82,430	14.1	5.4	0.3
Slovenia	4,507	1,415	383	226	806	29,000	15.5	4.1	0.8
Turkey	115,106	43,728	17,119	18,222	8,387	1,159,961	9.9	2.2	1.6
The Americas									
Total, selected locations ^d	1,908,888	608,212	220,117	261,735	132,304	10,621,805	18.0	3.3	2.5
North America	1,514,627	481,544	175,241	221,375	90,872	5,838,645	25.9	4.6	3.8
Canada	124,024	54,368	18,639	27,129	8,600	397,200	31.2	6.9	6.8
Mexico	191,024	42,502	12,161	8,983	21,358	2,038,406	9.4	1.6	0.4
United States	1,199,579	384,674	144,441	185,263	60,914	3,403,039	35.3	6.0	5.4
Central/South America	394,261	126,668	44,876	40,360	41,432	4,783,160	8.2	1.8	0.8
Argentina	37,878	16,106	5,369	7,325	3,412	567,400	6.7	1.5	1.3
Brazil	245,401	78,049	32,556	27,421	18,072	3,003,400	8.2	1.7	0.9
Chile	23,010	10,531	2,358	4,516	3,657	242,963	9.5	2.5	1.9
Colombia	54,188	12,678	1,642	NA	11,036	687,200	7.9	1.8	NA
Cuba	27,502	7,339	2,117	822	4,400	201,800	13.6	3.2	0.4
Nicaragua	6,282	1,965	834	276	855	80,397	7.8	2.1	0.3
Oceania									
Total, selected locations ^d	116,236	29,953	18,533	4,407	6,553	332,333	35.0	7.5	1.3
Australia	97,852	25,967	15,875	4,084	6,008	272,933	35.9	8.0	1.5
New Zealand	18,384	3,986	2,658	323	545	59,400	30.9	5.4	0.5

NA = not available; NS&E = natural sciences and engineering

^aNumber of degrees per 100 of the 24-year-old population. For countries with both short and long degrees, the ratios are calculated with short and long degrees as the numerator.^bIncludes physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences, and mathematics and computer sciences.^cIncludes psychology, sociology, and other social sciences. Japanese social science data also include business administration. Mexican social science data are estimated.^dIncludes only those locations for which relatively recent data are available.

Egyptian engineering data include architecture, industrial programs, transport, and communications.

Includes former colleges and polytechnics.

Includes short university and postgraduate degrees.

NOTES: Data are compiled from numerous national and international sources, and degree fields may not be strictly comparable. First university degrees in different countries are of different duration and may not be academically equivalent. In European countries, short degree programs are three years long; long degree programs take four to six years. Data for Austria, Belgium, China, Denmark, Finland, France, Germany, Japan, Russia, Taiwan, and the United Kingdom are for 1999. Data for Argentina, Australia, Brazil, Canada, Chile, Ireland, Italy, Korea, Mexico, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, and the United States are for 1998. Data for Bulgaria, Czech Republic, Ethiopia, Indonesia, Iran, Latvia, Lithuania, Nicaragua, Slovakia, and Slovenia are for 1997. Data for Albania, Colombia, Croatia, Cuba, Estonia, Georgia, Hungary, Israel, Jordan, Poland, Portugal, Saudi Arabia, South Africa, Tunisia, and Uganda are for 1996. Data for Egypt, Hong Kong, Kazakhstan, Morocco, Singapore, Syria, and Thailand are for 1995. Data for Turkey are for 1994. Data for Greece are for 1993. Data for India and Malaysia are for 1990.

SOURCES: Country data on number of 24-year-olds: U.S. Bureau of the Census, Population Division, <http://www.census.gov/ipc/www/idbnew>. **ASIA: China**—National Research Center for Science and Technology for Development, unpublished tabulations; **Hong Kong**—UNESCO (1998); **India**—Department of Science and Technology, *Research and Development Statistics 1994–95* (New Delhi, 1996); **Indonesia**—UNESCO (1999); **Japan**—Ministry of Education, Science, and Culture (Monbusho), *Monbusho Survey of Education* (Tokyo, 2001); **Malaysia**—UNESCO (1998); **Singapore**—National University of Singapore, Annual Report (Singapore: 1996); **South Korea**—Organisation for Economic Co-operation and Development, *Education at a Glance* (OECD, 2000); **Taiwan**—Ministry of Education, *Educational Statistics of the Republic of China* (Taipei, 2000); **Thailand**—UNESCO (1998); **MIDDLE EAST: Egypt**—UNESCO (1998); **Iran**—UNESCO (1998); **Israel**—UNESCO (1998); **Jordan**—UNESCO (1998); **Kazakhstan**—UNESCO (1998); **Morocco**—UNESCO (1998); **Saudi Arabia**—UNESCO (1998); **Syria**—UNESCO (1998); **Tunisia**—UNESCO (1998); **SUB-SAHARAN AFRICA: Ethiopia**—UNESCO (1999); **South Africa**—UNESCO (1999); **Uganda**—UNESCO (1999); **EUROPEAN UNION: Austria**—Austrian Central Statistical Office, unpublished tabulations; **Belgium**—(OECD); **Denmark**—Department of Higher Education, Ministry of Education, unpublished tabulations (2000); **Finland**—Central Statistical Office, unpublished tabulations (2000), and OECD; **France**—Ministère de l'Éducation Nationale, de la Recherche et de la Technologie, *Repères et Références Statistiques sur les Enseignements et la Formation* (Vanves, France, 2000); **Germany**—Statistisches Bundesamt Wiesbaden, *Prüfungen an Hochschulen* (Wiesbaden, 2000); **Greece**—OECD; **Ireland**—OECD; **Italy**—OECD; **The Netherlands**—OECD; **Portugal**—OECD; **Spain**—OECD; **Sweden**—OECD; **United Kingdom**—Higher Education Statistics Agency, unpublished tabulations, 2001; **EUROPEAN FREE TRADE ASSOCIATION: Norway**—OECD; **Switzerland**—OECD; **CENTRAL AND EASTERN EUROPE: Albania**—UNESCO (1998); **Bulgaria**—UNESCO (1998); **Czech Republic**—UNESCO (1998); **Estonia**—UNESCO (1998); **Georgia**—UNESCO (1998); **Hungary**—OECD; **Latvia**—UNESCO (1998); **Lithuania**—UNESCO (1998); **Poland**—UNESCO (1998); **Russia**—Center for Science Research and Statistics (CSRS); **Slovakia**—UNESCO (1998); **Slovenia**—UNESCO (1998); **Turkey**—UNESCO (1998); **NORTH AMERICA: Canada**—Association of Universities and Colleges, unpublished tabulations and (OECD); **Mexico**—Asociación Nacional de Universidades y Instituciones de Educación Superior, *Anuario Estadístico 1999: Población Escolar de Licenciatura en Universidades e Institutos Tecnológicos* (Mexico, 2000); **United States**—National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Degrees 1966–98*; **CENTRAL/SOUTH AMERICA: Argentina**—unpublished tabulations; **Brazil**—Instituto Nacional de Estudos Pesquisas Educacionais (INEP) and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Ministerio de Educacao; **Chile**—UNESCO (1999) and unpublished tabulations; **Colombia**—UNESCO (1998); **Cuba**—UNESCO (1998); **Nicaragua**—UNESCO (1999); **OCEANIA: Australia**—OECD; and **New Zealand**—OECD.

Appendix table 2-19.

Graduate enrollment in S&E, by field and sex: 1975–99 (selected years)

Field	1975	1977	1979	1981	1983	1985	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total																			
Total S&E	303,031	311,741	319,092	332,041	347,017	358,059	373,326	375,256	382,732	397,128	412,690	430,635	435,869	431,233	422,533	415,258	407,656	404,903	411,308
Natural sciences	95,489	101,221	100,871	100,617	102,979	104,074	104,963	105,529	107,301	109,364	112,474	116,702	119,495	120,842	120,335	117,688	114,676	113,831	114,127
Mathematics and computer sciences ...	25,307	25,160	26,721	32,318	40,691	47,332	50,559	51,304	51,729	54,031	54,633	56,680	56,213	53,737	51,967	52,641	52,720	54,515	58,814
Social and behavioral sciences	113,964	116,675	119,772	119,551	112,228	110,662	113,851	115,594	119,659	126,108	132,078	139,250	143,327	143,661	143,058	141,740	139,190	136,588	136,899
Engineering	68,271	68,685	71,728	79,555	91,119	95,991	103,953	102,829	104,043	107,625	113,505	118,003	116,834	112,993	107,173	103,189	101,070	99,969	101,468
Male																			
Total S&E	NA	233,818	229,812	232,193	240,498	247,421	256,146	253,998	256,844	263,391	271,843	280,396	279,285	272,116	262,332	253,597	245,629	241,458	242,840
Natural sciences	NA	76,073	72,945	70,721	70,711	70,745	70,685	69,869	70,263	70,800	71,753	73,757	74,089	73,881	72,492	69,957	67,214	65,690	64,827
Mathematics and computer sciences ...	NA	19,482	20,376	23,628	28,877	34,417	36,948	37,334	37,756	39,633	40,045	41,660	41,144	39,115	37,573	37,623	36,967	37,724	40,203
Social and behavioral sciences	NA	73,278	70,639	66,035	59,598	57,348	57,523	57,090	58,382	60,005	62,235	64,193	64,901	64,174	63,101	61,073	59,112	57,082	56,185
Engineering	NA	64,985	65,852	71,809	81,312	84,911	90,990	89,705	90,443	92,953	97,810	100,786	99,151	94,946	89,166	84,944	82,336	80,962	81,625
Female																			
Total S&E	NA	77,923	89,280	99,848	106,519	110,638	117,180	121,258	125,888	133,737	140,847	150,239	156,584	159,117	160,201	161,661	162,027	163,445	168,468
Natural sciences	NA	25,148	27,926	29,896	32,268	33,329	34,278	35,660	37,038	38,564	40,721	42,945	45,406	46,961	47,843	47,731	47,462	48,141	49,300
Mathematics and computer sciences ...	NA	5,678	6,345	8,690	11,814	12,915	13,611	13,970	13,973	14,398	14,588	15,020	15,069	14,622	14,394	15,018	15,753	16,791	18,611
Social and behavioral sciences	NA	43,397	49,133	53,516	52,630	53,314	56,328	58,504	61,277	66,103	69,843	75,057	78,426	79,487	79,957	80,667	80,078	79,506	80,714
Engineering	NA	3,700	5,876	7,746	9,807	11,080	12,963	13,124	13,600	14,672	15,695	17,217	17,683	18,047	18,007	18,245	18,734	19,007	19,843

NA = not available

NOTE: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences. For detailed statistical tables on graduate enrollment, see source document on Science Resources Statistics Division Web page <<http://www.nsf.gov/sbe/srs/stats.htm>>.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Graduate Students and Postdoctorates in Science and Engineering, Fall 1999*, NSF 01-315 (Arlington, VA, 2001), and previous editions of this publication.

Science & Engineering Indicators – 2002

Appendix table 2-20.
Graduate enrollment in S&E, by field, race/ethnicity, and citizenship: 1983–99

Field and race/ethnicity	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total																	
S&E	347,017	349,698	358,059	368,082	373,326	375,256	382,732	397,128	412,690	430,635	435,869	431,233	422,533	415,258	407,656	404,903	411,308
Natural sciences	102,979	103,550	104,074	105,534	104,963	105,529	107,301	109,364	112,474	116,702	119,495	120,842	120,335	117,688	114,676	113,831	114,127
Mathematics and computer sciences	40,691	42,969	47,332	49,298	50,559	51,304	51,729	54,031	54,633	56,680	56,213	53,737	51,967	52,641	52,720	54,515	58,814
Social and behavioral sciences	112,228	110,467	110,662	111,376	113,851	115,594	119,659	126,108	132,078	139,250	143,327	143,661	143,058	141,740	139,190	136,588	136,899
Engineering	91,119	92,712	95,991	101,874	103,953	102,829	104,043	107,625	113,505	118,003	116,834	112,993	107,173	103,189	101,070	99,969	101,468
U.S. citizen or permanent resident																	
Total S&E	276,784	277,682	281,388	284,231	284,631	281,672	284,686	294,318	304,063	321,171	330,148	329,073	323,993	317,101	308,665	302,875	301,404
Natural sciences	84,700	84,712	83,663	82,854	80,562	79,431	79,242	79,521	81,148	84,894	88,166	89,895	90,655	89,283	87,352	86,525	86,685
Mathematics and computer sciences	30,306	31,532	34,499	35,448	35,669	35,895	35,352	36,561	36,306	38,087	38,170	36,612	35,363	35,033	34,259	34,672	35,737
Social and behavioral sciences	98,173	96,644	95,978	96,018	97,831	98,743	102,746	108,810	114,376	121,641	126,256	126,559	126,268	124,633	122,458	119,471	118,931
Engineering	63,605	64,794	67,160	69,911	70,569	67,603	67,346	69,426	72,233	76,549	77,556	76,007	71,707	68,152	64,596	62,207	60,051
White, S&E	224,705	224,705	224,705	224,705	224,705	229,037	229,694	238,472	243,602	253,425	256,840	255,701	245,893	238,062	228,018	220,689	216,865
Natural sciences	74,337	74,046	71,971	71,713	69,100	68,737	68,110	68,736	69,472	71,329	72,554	74,137	73,300	71,783	68,998	67,808	67,795
Mathematics and computer sciences	23,823	24,040	25,511	26,053	26,806	27,479	26,560	27,897	26,921	27,802	27,376	26,248	24,432	23,680	22,422	22,048	22,085
Social and behavioral sciences	77,963	75,787	76,129	76,930	79,157	80,492	83,531	88,632	92,425	96,956	99,514	99,339	96,239	93,523	90,543	86,773	84,971
Engineering	48,582	48,582	48,582	48,582	48,582	52,329	51,493	53,207	54,784	57,338	57,396	55,977	51,922	49,076	46,055	44,060	42,014
Asian/Pacific Islander, S&E	9,353	10,172	12,000	12,775	14,572	15,188	15,693	17,155	18,136	21,751	24,059	26,475	25,904	25,928	26,007	26,709	27,562
Natural sciences	2,378	2,526	2,712	2,761	3,043	3,478	3,604	3,928	4,267	5,035	6,162	6,607	6,781	6,900	6,837	6,928	6,850
Mathematics and computer sciences	1,666	1,816	2,491	2,770	3,235	3,438	3,430	3,710	3,724	4,352	4,577	5,254	5,164	5,491	5,678	6,393	7,158
Social and behavioral sciences	1,903	2,018	1,992	2,130	2,436	2,362	2,648	2,830	3,029	3,862	4,324	4,827	4,941	5,097	5,359	5,383	5,400
Engineering	3,406	3,812	4,805	5,114	5,858	5,910	6,011	6,687	7,116	8,502	8,996	9,787	9,018	8,440	8,133	8,005	8,154
Black, S&E	10,903	10,711	10,462	10,470	10,429	11,191	11,775	12,774	13,691	15,445	17,116	17,610	18,282	19,068	19,346	19,654	20,341
Natural sciences	1,980	2,000	1,982	1,845	1,817	1,972	2,093	2,184	2,302	2,711	3,042	3,007	3,289	3,487	3,554	3,603	3,651
Mathematics and computer sciences	971	960	1,031	1,151	1,210	1,261	1,311	1,496	1,617	1,685	1,877	1,855	1,844	1,987	1,957	1,968	2,095
Social and behavioral sciences	6,574	6,306	6,062	6,022	5,986	6,458	6,755	7,308	7,747	8,673	9,637	9,964	10,293	10,697	10,957	11,261	11,629
Engineering	1,378	1,445	1,387	1,452	1,416	1,500	1,616	1,786	2,025	2,376	2,560	2,784	2,856	2,897	2,878	2,822	2,966
Hispanic, S&E	8,811	8,681	8,613	8,660	8,823	9,098	9,436	10,159	11,045	12,246	13,381	13,277	14,111	14,568	14,980	15,476	16,514
Natural sciences	1,919	1,892	2,092	2,118	2,071	2,228	2,386	2,375	2,552	2,726	3,075	2,933	3,209	3,338	3,575	3,636	3,882
Mathematics and computer sciences	615	585	750	723	817	844	847	916	980	1,082	1,110	1,000	1,064	1,125	1,150	1,208	1,318
Social and behavioral sciences	4,836	4,713	4,290	4,217	4,205	4,307	4,496	4,982	5,389	5,975	6,501	6,481	7,030	7,169	7,443	7,732	8,395
Engineering	1,441	1,491	1,481	1,602	1,730	1,719	1,707	1,886	2,124	2,463	2,695	2,863	2,808	2,936	2,812	2,900	2,919
American Indian/Alaskan Native, S&E	911	830	736	743	783	918	860	1,054	1,120	1,243	1,309	1,382	1,516	1,538	1,600	1,607	1,557
Natural sciences	224	206	167	196	183	216	180	255	251	282	318	336	393	374	412	410	387
Mathematics and computer sciences	53	71	79	52	76	71	74	64	62	99	102	80	126	95	103	126	105
Social and behavioral sciences	454	361	368	365	401	488	484	583	622	685	680	725	767	836	846	835	823
Engineering	180	192	122	130	123	143	122	152	185	177	177	209	241	230	233	239	236
Unknown, S&E	22,101	24,179	25,825	23,961	21,160	16,240	17,228	14,704	16,469	17,061	17,443	14,628	18,287	17,937	18,714	18,740	18,565
Natural sciences	3,862	4,042	4,819	4,221	4,348	2,800	2,869	2,043	2,304	2,811	3,015	2,875	3,683	3,401	3,976	4,140	4,120
Mathematics and computer sciences	3,178	4,060	4,637	4,699	3,525	2,802	3,130	2,478	3,002	3,067	3,128	2,175	2,733	2,655	2,949	2,929	2,976
Social and behavioral sciences	6,443	7,459	7,145	6,354	5,646	4,636	4,832	4,475	5,164	5,490	5,600	5,223	6,998	7,311	7,310	7,487	7,713
Engineering	8,618	8,618	9,224	8,687	7,641	6,002	6,397	5,708	5,999	5,693	5,693	5,700	4,355	4,873	4,570	4,479	4,184

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-20.

Graduate enrollment in S&E, by field, race/ethnicity, and citizenship: 1983–99

Field and race/ethnicity	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Foreign citizen enrollment																	
Total S&E	70,230	72,193	76,813	83,981	88,794	93,615	98,083	102,817	108,634	109,464	105,721	102,160	98,540	98,157	98,991	102,028	109,904
Natural sciences	18,268	18,835	20,327	22,687	24,412	26,098	28,059	29,843	31,326	31,808	31,329	30,947	29,680	28,405	27,324	27,306	27,442
Mathematics and computer sciences	10,407	11,453	12,842	13,868	14,906	15,409	16,377	17,470	18,256	18,593	18,043	17,125	16,604	17,608	18,461	19,843	23,077
Social and behavioral sciences	14,063	14,003	14,830	15,481	16,108	16,882	16,950	17,305	17,709	17,609	17,071	17,102	16,790	17,107	16,732	17,117	17,968
Engineering	27,492	27,902	28,822	31,945	33,368	35,226	36,697	38,199	41,343	41,454	39,278	36,986	35,466	35,037	36,474	37,762	41,417

NOTES: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Graduate Students and Postdoctorates in Science and Engineering Fall 1999*, NSF 01-315, (Arlington, VA, 2001).

Appendix table 2-21.

Enrollment of foreign graduate students in U.S. universities for top 10 locations of origin, by field and academic year: 1987/88 to 1999/2000

Location of origin	Total foreign students	Foreign graduate students	Percentage distribution of foreign graduate students across selected field groupings							Non- S&E
			S&E	Social sciences	Physical and life sciences	Mathematics and computer sciences	Agriculture	Engineering	Other sciences	
1999/2000										
All locations	514,723	225,383	NA	NA	NA	NA	NA	NA	NA	NA
Top 10 locations total	279,608	144,256	NA	NA	NA	NA	NA	NA	NA	NA
China	54,466	44,127	NA	NA	NA	NA	NA	NA	NA	NA
Japan	46,872	8,897	NA	NA	NA	NA	NA	NA	NA	NA
Korea	41,191	20,085	NA	NA	NA	NA	NA	NA	NA	NA
India	42,337	30,533	NA	NA	NA	NA	NA	NA	NA	NA
Taiwan	29,234	14,891	NA	NA	NA	NA	NA	NA	NA	NA
Canada	23,544	10,133	NA	NA	NA	NA	NA	NA	NA	NA
Thailand	10,983	6,872	NA	NA	NA	NA	NA	NA	NA	NA
Indonesia	11,300	2,708	NA	NA	NA	NA	NA	NA	NA	NA
Malaysia	9,074	1,984	NA	NA	NA	NA	NA	NA	NA	NA
Mexico	10,607	4,026	NA	NA	NA	NA	NA	NA	NA	NA
Other locations	235,115	81,127	NA	NA	NA	NA	NA	NA	NA	NA
1997/98										
All locations	481,280	211,282	NA	NA	NA	NA	NA	NA	NA	NA
Top 10 locations total	276,173	137,850	NA	NA	NA	NA	NA	NA	NA	NA
China	46,958	39,204	78.3	5.3	24.7	16.1	3.1	25.6	3.5	21.7
Japan	47,073	8,852	49.9	23.6	4.9	3.9	1.4	6.5	9.6	50.1
Korea	42,890	18,961	54.1	10.2	9.0	6.9	2.2	18.0	7.8	45.9
India	33,818	25,128	76.9	4.1	9.2	17.9	1.5	41.6	2.6	23.1
Taiwan	30,855	17,141	51.5	6.5	7.8	10.4	1.5	19.6	5.7	48.5
Canada	22,051	9,408	41.8	13.7	9.7	2.3	1.5	6.7	7.9	58.2
Thailand	15,090	9,785	42.4	7.3	4.6	4.8	2.1	18.0	5.6	57.6
Indonesia	13,282	3,489	43.4	7.2	2.7	3.8	2.7	22.3	4.7	56.6
Malaysia	14,597	2,185	56.8	8.4	7.1	6.9	3.5	24.3	6.6	43.2
Mexico	9,559	3,697	63.1	12.6	9.0	5.1	10.6	19.8	6.0	36.9
Other locations	205,107	73,432	NA	NA	NA	NA	NA	NA	NA	NA
1995/96										
All locations	453,787	194,221	NA	NA	NA	NA	NA	NA	NA	NA
Top 10 locations total	256,512	122,044	NA	NA	NA	NA	NA	NA	NA	NA
China	39,613	32,512	79.7	5.9	28.3	13.1	4.3	24.9	3.2	20.3
Japan	45,531	7,819	50.3	24.7	5.0	3.4	2.3	7.4	7.5	49.7
Korea	36,231	15,045	58.7	11.2	11.8	7.0	3.3	18.7	6.7	41.3
India	31,743	23,593	79.5	4.2	10.4	17.7	2.8	41.3	3.1	20.5
Taiwan	32,702	18,904	58.0	6.7	8.6	10.1	3.4	24.2	5.0	42.0
Canada	23,005	8,851	39.1	15.5	7.6	1.5	2.3	4.6	7.6	60.9
Thailand	12,165	7,347	41.3	5.6	3.8	5.2	3.8	19.5	3.4	58.7
Indonesia	12,820	2,947	52.9	10.6	3.9	6.5	6.3	22.0	3.6	47.1
Malaysia	14,015	1,956	56.7	11.6	6.6	11.0	2.0	20.1	5.4	43.3
Mexico	8,687	3,070	67.4	14.7	11.6	7.1	9.8	19.3	4.9	32.6
Other locations	197,275	72,177	NA	NA	NA	NA	NA	NA	NA	NA
1993/94										
All locations	449,749	201,038	NA	NA	NA	NA	NA	NA	NA	NA
Top 10 locations total	257,279	134,474	NA	NA	NA	NA	NA	NA	NA	NA
China	44,381	36,370	79.7	6.3	31.5	12.0	2.8	23.9	3.2	20.3
Japan	43,770	7,755	43.7	17.3	6.0	3.2	1.5	8.0	7.7	56.3
Korea	31,076	15,785	59.8	12.5	14.5	7.4	2.2	18.3	4.9	40.2
India	34,796	27,533	79.5	4.5	10.1	17.0	1.6	43.8	2.5	20.5
Taiwan	37,581	24,623	61.0	5.4	10.0	11.4	1.9	27.0	5.3	39.0
Canada	22,655	8,455	39.9	13.6	9.4	2.5	1.5	6.2	6.7	60.1
Thailand	9,537	5,621	35.4	6.4	4.2	5.8	1.8	13.2	4.0	64.6
Indonesia	11,744	3,399	54.2	10.7	7.2	4.7	5.3	21.7	4.6	45.8
Malaysia	13,718	2,078	57.8	12.9	7.9	8.1	1.8	21.8	5.3	42.2
Mexico	8,021	2,855	63.5	12.8	12.0	7.6	8.1	16.9	6.1	36.5
Other locations	192,470	66,564	NA	NA	NA	NA	NA	NA	NA	NA

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-21.

Enrollment of foreign graduate students in U.S. universities for top 10 locations of origin, by field and academic year: 1987/88 to 1999/2000

Location of origin	Total foreign students	Foreign graduate students	S&E	Percentage distribution of foreign graduate students across selected field groupings					
				Social sciences	Physical and life sciences	Mathematics and computer sciences	Agriculture	Engineering	Other sciences
1991/92									
All locations	419,585	197,625	NA	NA	NA	NA	NA	NA	NA
Top 10 locations total	233,870	125,769	NA	NA	NA	NA	NA	NA	NA
China	42,940	34,824	81.5	7.7	33.2	12.0	3.0	22.6	3.0
Japan	40,700	7,082	43.6	18.2	5.5	2.7	1.3	7.7	8.2
Korea	25,720	14,738	63.0	12.7	14.5	7.9	2.7	20.7	4.5
India	32,530	25,536	78.8	4.7	10.4	16.9	1.6	43.2	2.0
Taiwan	35,550	24,138	64.3	5.7	12.2	12.5	2.3	26.5	5.1
Canada	19,190	8,041	37.3	13.4	9.5	2.2	1.6	5.9	4.7
Thailand	7,690	4,176	40.4	10.4	3.9	6.6	2.7	11.4	5.4
Indonesia	10,250	2,860	52.9	10.5	6.7	6.1	8.0	18.0	3.6
Malaysia	12,650	2,226	55.1	10.9	6.9	8.2	3.6	21.0	4.5
Mexico	6,650	2,148	68.1	11.3	15.5	8.0	10.4	19.9	3.0
Other locations	185,715	71,856	NA	NA	NA	NA	NA	NA	NA
1989/90									
All locations	386,851	172,536	NA	NA	NA	NA	NA	NA	NA
Top 10 locations total	196,680	110,287	NA	NA	NA	NA	NA	NA	NA
China	33,390	27,614	81.7	8.1	33.0	13.5	2.8	21.0	3.3
Japan	29,840	5,819	44.1	19.6	5.5	3.1	1.5	7.4	7.0
Korea	21,710	15,132	67.6	14.0	15.6	9.0	2.4	21.9	4.7
India	26,240	19,811	77.3	6.1	12.2	16.3	1.6	38.7	2.4
Taiwan	30,960	23,622	71.5	5.6	12.1	16.5	2.6	29.8	4.9
Canada	17,870	6,934	41.5	13.8	10.9	2.7	1.7	6.5	5.9
Thailand	6,630	3,633	NA	NA	NA	NA	NA	NA	NA
Indonesia	9,390	3,071	NA	NA	NA	NA	NA	NA	NA
Malaysia	14,110	2,709	NA	NA	NA	NA	NA	NA	NA
Mexico	6,540	1,942	63.9	11.9	17.3	7.4	8.7	15.5	3.1
Other locations	190,171	62,249	NA	NA	NA	NA	NA	NA	NA
1987/88									
All locations	356,187	156,366	NA	NA	NA	NA	NA	NA	NA
Top 10 countries total	168,190	94,160	NA	NA	NA	NA	NA	NA	NA
China	25,170	20,388	81.0	9.0	31.1	12.9	2.9	21.3	3.8
Japan	18,050	4,260	NA	NA	NA	NA	NA	NA	NA
Korea	20,520	14,939	67.3	15.9	14.5	8.8	2.9	21.1	4.1
India	21,010	15,547	75.4	6.8	13.6	12.8	1.6	37.5	3.1
Taiwan	26,660	20,875	NA	NA	NA	n/a	NA	NA	NA
Canada	15,690	5,915	45.4	14.7	12.0	2.9	2.5	6.7	6.6
Thailand	6,430	3,620	NA	NA	NA	NA	NA	NA	NA
Indonesia	9,010	2,586	NA	NA	NA	NA	NA	NA	NA
Malaysia	19,480	4,149	50.1	11.8	5.7	13.3	4.0	12.4	2.9
Mexico	6,170	1,882	67.3	14.8	15.2	8.1	11.0	14.8	3.4
Other locations	187,997	62,206	NA	NA	NA	NA	NA	NA	NA

NA = not available

NOTES: The field of study data are collected biennially. Student counts other than the total foreign student enrollment are imputed from the data reported by institutions. A large discrepancy exists between the academic level figures reported by country and those provided for all foreign students in general. The discrepancy results from the differential response rates to the nationality question and the academic level question. For 1987/88 and 1988/89, data for certain countries were not reported in the *Open Doors* publication.

SOURCE: Institute of International Education, *Open Doors: Report on International Educational Exchange* (Annual series), and *Profiles* (Biennial series), 1987–2000. New York, special tabulations, 2001.

Appendix table 2-22.

Earned master's degrees, by field and sex: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total															
All degrees	293,651	318,241	302,075	296,798	290,931	287,213	290,532	311,050	338,498	370,973	389,008	399,428	408,932	420,954	431,871
S&E	63,198	67,397	64,226	64,366	67,733	70,578	72,603	76,425	78,368	86,425	91,411	94,309	95,313	93,485	93,918
Natural sciences	14,831	15,360	15,443	14,349	14,380	13,973	13,400	13,218	12,682	13,474	14,367	14,793	16,158	16,097	15,625
Physical sciences	4,298	3,641	3,650	3,366	3,285	3,605	3,574	3,876	3,777	3,965	4,263	4,241	4,364	4,141	3,969
Earth/atmospheric/ocean sciences	1,503	1,659	1,777	1,876	1,959	2,160	2,051	1,819	1,499	1,397	1,418	1,483	1,487	1,435	1,426
Biological and agricultural sciences	9,030	10,060	10,016	9,107	9,136	8,208	7,775	7,523	7,406	8,112	8,686	9,069	10,307	10,521	10,230
Mathematics and computer sciences	6,637	6,496	6,101	6,787	8,177	10,004	11,808	12,829	12,956	14,100	14,350	14,495	14,355	14,088	15,277
Mathematics	4,338	3,698	3,046	2,569	2,856	2,903	3,327	3,430	3,632	3,751	3,804	3,932	3,742	3,599	3,525
Computer sciences	2,299	2,798	3,055	4,218	5,321	7,101	8,481	9,399	9,324	10,349	10,546	10,563	10,613	10,489	11,752
Social and behavioral sciences	26,563	29,529	27,403	26,779	26,290	25,629	25,325	26,635	28,717	31,187	33,977	36,391	37,039	37,426	36,878
Psychology	7,104	8,320	8,031	8,039	8,439	8,481	8,165	8,652	9,802	10,412	11,572	13,132	13,043	13,633	13,146
Social sciences	19,459	21,209	19,372	18,740	17,851	17,148	17,160	17,983	18,915	20,775	22,405	23,259	23,996	23,793	23,732
Engineering	15,167	16,012	15,279	16,451	18,886	20,972	22,070	23,743	24,013	27,664	28,717	28,630	27,761	25,874	26,138
Chemical	1,078	1,179	1,276	1,406	1,545	1,814	1,386	1,321	1,025	1,220	1,287	1,369	1,416	1,345	1,372
Civil	3,268	3,606	3,165	3,428	3,504	3,542	3,267	3,296	3,404	4,438	4,918	5,168	5,002	4,880	4,736
Electrical	3,471	3,788	3,596	3,902	4,819	5,649	6,895	7,849	7,942	8,828	8,870	8,743	8,156	7,341	7,971
Industrial	1,687	1,609	1,502	1,631	1,432	1,463	1,728	1,823	2,039	2,745	2,882	2,873	3,027	2,935	3,109
Mechanical	2,032	2,094	2,012	2,419	2,683	3,272	3,380	3,703	3,680	4,169	4,277	4,368	4,009	3,756	3,551
Other	3,631	3,736	3,728	3,665	4,903	5,232	5,414	5,751	5,923	6,264	6,483	6,109	6,151	5,617	5,399
Engineering technologies	371	505	496	532	622	816	883	1,135	1,188	1,555	1,547	1,577	1,651	1,414	1,700
Male															
All degrees	162,115	168,210	153,772	147,431	145,114	143,716	141,655	149,399	156,895	169,753	176,762	179,198	180,360	181,457	185,061
S&E	49,410	50,899	46,614	45,505	46,734	48,247	48,759	50,845	50,441	55,454	57,970	58,518	57,860	55,223	55,335
Natural sciences	11,709	11,633	11,223	10,222	9,818	9,295	8,652	8,383	7,794	8,181	8,539	8,730	9,224	9,064	8,628
Physical sciences	3,645	2,981	2,971	2,691	2,600	2,775	2,684	2,836	2,703	2,794	3,030	2,958	2,914	2,808	2,529
Earth/atmospheric/ocean sciences	1,309	1,433	1,467	1,470	1,515	1,639	1,531	1,337	1,116	1,006	994	1,032	1,051	948	932
Biological and agricultural sciences	6,755	7,219	6,785	6,061	5,703	4,881	4,437	4,210	3,975	4,381	4,515	4,740	5,259	5,308	5,167
Mathematics and computer sciences	4,871	4,730	4,469	4,939	5,684	6,951	8,011	8,833	8,709	9,773	10,128	10,130	9,999	9,620	10,393
Mathematics	2,910	2,398	1,989	1,692	1,871	1,887	2,026	2,060	2,146	2,219	2,311	2,353	2,236	2,110	2,055
Computer sciences	1,961	2,332	2,480	3,247	3,813	5,064	5,985	6,773	6,563	7,554	7,817	7,777	7,763	7,510	8,338
Social and behavioral sciences	18,035	19,222	16,580	15,222	14,101	13,273	12,796	12,968	13,282	13,930	15,009	15,660	15,628	15,360	15,339
Psychology	4,059	4,316	3,688	3,371	3,254	3,064	2,838	2,814	2,994	2,928	3,287	3,735	3,670	3,715	3,606
Social sciences	13,976	14,906	12,892	11,851	10,847	10,209	9,958	10,154	10,288	11,002	11,722	11,925	11,958	11,645	11,733
Engineering	14,795	15,314	14,342	15,122	17,131	18,728	19,300	20,661	20,656	23,570	24,294	23,998	23,009	21,179	20,975
Chemical	1,051	1,110	1,156	1,230	1,369	1,529	1,143	1,092	852	996	1,008	1,063	1,110	1,013	1,028
Civil	3,161	3,421	2,951	3,112	3,122	3,128	2,792	2,851	2,864	3,607	3,965	4,123	3,938	3,781	3,582
Electrical	3,413	3,654	3,453	3,681	4,484	5,154	6,178	6,933	7,008	7,777	7,721	7,539	6,960	6,197	6,595
Industrial	1,631	1,534	1,374	1,465	1,226	1,236	1,409	1,465	1,603	2,190	2,346	2,361	2,403	2,331	2,433
Mechanical	2,012	2,039	1,939	2,292	2,517	3,044	3,133	3,377	3,320	3,769	3,860	3,918	3,555	3,337	3,090
Other	3,527	3,556	3,469	3,342	4,413	4,637	4,645	4,943	5,009	5,231	5,394	4,994	5,043	4,520	4,247
Engineering technologies	281	389	371	380	519	674	678	892	888	1,172	1,164	1,136	1,179	1,012	1,158

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-22.

Earned master's degrees, by field and sex: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Female															
All degrees	131,536	150,031	148,303	149,367	145,817	143,497	148,877	161,651	181,603	201,220	212,246	220,230	228,572	239,497	246,810
S&E	13,788	16,498	17,612	18,861	20,999	22,331	23,844	25,580	27,927	30,971	33,441	35,791	37,453	38,262	38,583
Natural sciences	3,122	3,727	4,220	4,127	4,562	4,678	4,748	4,835	4,888	5,293	5,828	6,063	6,934	7,033	6,997
Physical sciences	653	660	679	675	685	830	890	1,040	1,074	1,171	1,233	1,283	1,450	1,333	1,440
Earth/atmospheric/ocean sciences	194	226	310	406	444	521	520	482	383	391	424	451	436	487	494
Biological and agricultural sciences	2,275	2,841	3,231	3,046	3,433	3,327	3,338	3,313	3,431	3,731	4,171	4,329	5,048	5,213	5,063
Mathematics and computer sciences	1,766	1,766	1,632	1,848	2,493	3,053	3,797	3,996	4,247	4,327	4,222	4,365	4,356	4,468	4,884
Mathematics	1,428	1,300	1,057	877	985	1,016	1,301	1,370	1,486	1,532	1,493	1,579	1,506	1,489	1,470
Computer sciences	338	466	575	971	1,508	2,037	2,496	2,626	2,761	2,795	2,729	2,786	2,850	2,979	3,414
Social and behavioral sciences	8,528	10,307	10,823	11,557	12,189	12,356	12,529	13,667	15,435	17,257	18,968	20,731	21,411	22,066	21,539
Psychology	3,045	4,004	4,343	4,668	5,185	5,417	5,327	5,838	6,808	7,484	8,285	9,397	9,373	9,918	9,540
Social sciences	5,483	6,303	6,480	6,889	7,004	6,939	7,202	7,829	8,627	9,773	10,683	11,334	12,038	12,148	11,999
Engineering	372	698	937	1,329	1,755	2,244	2,770	3,082	3,357	4,094	4,423	4,632	4,752	4,695	5,163
Chemical	27	69	120	176	176	285	243	229	173	224	279	306	306	332	344
Civil	107	185	214	316	382	414	475	445	540	831	953	1,045	1,064	1,099	1,154
Electrical	58	134	143	221	335	495	717	916	934	1,051	1,149	1,204	1,196	1,144	1,376
Industrial	56	75	128	166	206	227	319	358	436	555	536	512	624	604	676
Mechanical	20	55	73	127	166	228	247	326	360	400	417	450	454	419	461
Other	104	180	259	323	490	595	769	808	914	1,033	1,089	1,115	1,108	1,097	1,152
Engineering technologies	90	116	125	152	103	142	205	243	300	383	383	441	472	402	542

NA = not available

NOTES: Appendix tables with degree data by sex do not match precisely the degree data by race/ethnicity in any field at the associate, bachelor's, or master's level. Physical sciences include physics, chemistry, and astronomy.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Degrees: 1966-98*, NSF 01-325 (Arlington, VA 2001).

Appendix table 2-23.

Earned master's degree, by field, race/ethnicity, and citizenship: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total															
All degrees	318,241	302,075	296,798	287,213	290,532	311,050	324,947	338,498	354,207	370,973	389,008	399,428	408,932	420,954	431,871
S&E	63,779	59,684	59,598	64,726	66,774	70,333	72,228	72,828	76,184	81,415	86,080	88,431	88,730	86,697	87,144
Natural sciences	16,234	16,350	15,332	14,045	13,461	13,260	12,966	12,713	13,226	13,462	14,340	14,770	16,093	16,022	15,562
Physical sciences	5,345	5,464	5,300	5,802	5,638	5,703	5,411	5,282	5,352	5,365	5,688	5,735	5,854	5,579	5,398
Biological sciences	7,154	6,879	6,015	5,091	4,999	4,953	4,893	4,806	4,816	4,798	5,217	5,423	6,207	6,497	6,283
Agricultural sciences	3,735	4,007	4,017	3,152	2,824	2,604	2,662	2,625	3,058	3,299	3,435	3,612	4,032	3,946	3,881
Mathematics and computer sciences	6,496	6,101	6,787	9,989	11,808	12,829	13,327	12,956	13,549	14,251	14,529	14,260	13,897	14,970	
Mathematics	3,698	3,046	2,569	2,888	3,327	3,430	3,684	3,632	4,019	4,084	4,108	4,190	4,037	3,790	3,700
Computer sciences	2,798	3,055	4,218	7,101	8,481	9,399	9,643	9,324	9,530	10,167	10,421	10,332	10,223	10,107	11,270
Social and behavioral sciences	24,798	21,723	20,763	19,757	19,448	20,509	21,950	23,152	24,399	26,044	28,504	30,522	30,620	30,908	30,484
Psychology	8,320	8,031	8,039	8,481	8,165	8,652	9,308	9,802	10,280	11,020	12,274	14,021	13,862	14,442	13,910
Social sciences	16,478	13,692	12,724	11,276	11,283	11,857	12,642	13,350	14,119	15,024	16,230	16,501	16,758	16,466	16,574
Engineering	16,251	15,510	16,716	20,935	22,057	23,735	23,985	24,007	25,010	27,658	28,707	28,617	27,757	25,870	26,128
Non-S&E	254,462	242,391	237,200	222,487	223,758	240,717	252,719	265,670	278,023	289,558	302,928	310,997	320,202	334,257	344,727
Engineering technologies	NA	NA	NA	816	883	1,135	1,194	1,188	1,278	1,555	1,547	1,577	1,651	1,414	1,700
U.S. citizen/permanent resident															
All degrees	300,896	282,648	274,740	260,261	262,268	278,927	290,345	300,887	314,555	326,864	342,502	350,672	360,682	371,477	379,666
S&E	55,974	51,140	49,849	52,220	53,729	55,190	55,890	55,779	58,177	61,265	65,201	67,110	68,151	66,609	65,748
Natural sciences	14,437	14,455	13,468	11,867	11,329	10,756	10,234	9,857	10,191	10,317	10,929	11,471	12,720	12,803	12,564
Physical sciences	4,689	4,758	4,514	4,704	4,582	4,465	4,047	3,778	3,814	3,763	3,918	3,980	4,119	3,933	3,898
Biological sciences	6,677	6,415	5,647	4,617	4,490	4,317	4,164	4,057	4,021	3,949	4,284	4,543	5,230	5,589	5,392
Agricultural sciences	3,071	3,282	3,307	2,546	2,257	1,974	2,023	2,022	2,356	2,605	2,727	2,948	3,371	3,281	3,274
Mathematics and computer sciences	5,760	5,164	5,419	7,595	8,905	9,411	9,729	9,078	9,268	9,334	9,522	9,486	9,308	8,961	9,194
Mathematics	3,328	2,574	2,105	2,203	2,491	2,454	2,649	2,573	2,907	2,946	3,013	3,034	2,956	2,789	2,671
Computer sciences	2,432	2,590	3,314	5,392	6,414	6,957	7,080	6,505	6,361	6,388	6,509	6,452	6,352	6,172	6,523
Social and behavioral sciences	23,071	19,971	18,809	17,517	17,219	18,035	19,181	20,357	21,607	23,075	25,400	27,232	27,361	27,609	27,020
Psychology	8,149	7,868	7,769	8,185	7,945	8,393	8,923	9,485	9,978	10,688	11,913	13,537	13,423	14,025	13,441
Social sciences	14,922	12,103	11,040	9,332	9,274	9,642	10,258	10,872	11,629	12,387	13,487	13,695	13,938	13,584	13,579
Engineering	12,706	11,550	12,153	15,241	16,276	16,988	16,746	16,487	17,111	18,539	19,350	18,921	18,762	17,236	16,970
Non-S&E	244,922	231,508	224,891	208,041	208,539	223,737	234,455	245,108	256,378	265,599	277,301	283,562	292,531	304,868	313,918
Engineering technologies	NA	NA	NA	692	756	1,004	1,032	1,016	1,063	1,276	1,256	1,268	1,353	1,153	1,432
White															
All degrees	266,109	249,401	241,255	223,649	216,807	230,322	236,874	247,524	257,062	265,668	273,913	277,437	282,713	288,353	291,962
S&E	50,420	45,748	43,967	43,982	43,360	43,945	44,450	44,513	45,649	47,975	50,711	51,417	51,791	50,288	49,047
Natural sciences	13,405	13,282	12,411	10,559	9,623	9,262	8,722	8,300	8,393	8,504	8,859	9,242	10,332	10,334	10,122
Physical sciences	4,363	4,373	4,115	4,133	3,834	3,766	3,401	3,129	3,067	3,078	3,145	3,179	3,326	3,173	3,129
Biological sciences	6,182	5,862	5,213	4,081	3,745	3,679	3,501	3,353	3,251	3,144	3,453	3,589	4,080	4,342	4,156
Agricultural sciences	2,860	3,047	3,083	2,345	2,044	1,817	1,820	1,818	2,075	2,282	2,261	2,474	2,926	2,819	2,837
Mathematics and computer sciences	5,256	4,625	4,708	6,176	6,729	6,818	7,020	6,705	6,743	6,818	6,665	6,547	6,340	6,013	6,012
Mathematics	3,048	2,352	1,890	1,873	2,012	2,032	2,169	2,068	2,336	2,354	2,379	2,342	2,227	2,145	2,036
Computer sciences	2,208	2,273	2,818	4,303	4,717	4,786	4,851	4,637	4,407	4,464	4,286	4,205	4,113	3,868	3,976
Social and behavioral sciences	20,315	17,759	16,701	15,061	14,171	15,033	15,849	16,873	17,761	18,733	20,718	21,807	21,546	21,451	20,834
Psychology	7,201	7,078	7,019	7,220	6,698	7,075	7,489	7,973	8,238	8,810	9,960	11,107	10,739	11,101	10,421
Social sciences	13,114	10,681	9,682	7,841	7,473	7,958	8,360	8,900	9,523	9,923	10,758	10,700	10,807	10,350	10,413
Engineering	11,444	10,082	10,147	12,186	12,837	12,832	12,859	12,635	12,752	13,920	14,469	13,821	13,573	12,490	12,079
Non-S&E	215,689	203,653	197,288	179,667	173,447	186,377	192,424	203,011	211,413	217,693	223,202	226,020	230,922	238,065	242,915
Engineering technologies	NA	NA	NA	526	581	802	823	830	817	1,041	994	982	1,053	950	1,115

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-23.

Earned master's degree, by field, race/ethnicity, and citizenship: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Asian/Pacific Islander															
All degrees	5,145	5,519	6,304	7,805	8,129	10,174	9,994	11,070	12,293	13,169	14,559	15,906	17,281	17,912	19,936
S&E	1,749	1,929	2,170	3,285	3,455	4,100	406	4,310	4,763	4,846	5,422	5,683	5,942	5,845	6,178
Natural sciences	388	469	365	450	464	545	504	532	610	615	698	802	933	971	937
Physical sciences	142	160	153	213	227	278	234	251	295	249	284	288	304	308	278
Biological sciences	165	205	145	179	190	223	225	231	264	305	332	417	519	558	576
Agricultural sciences	81	104	67	58	47	44	45	50	51	61	82	97	110	105	83
Mathematics and computer sciences	198	253	376	779	962	1,072	1,125	1,203	1,306	1,303	1,461	1,478	1,472	1,516	1,742
Mathematics	90	104	97	164	183	178	184	189	201	197	233	239	235	248	215
Computer sciences	108	149	279	615	779	894	941	1,014	1,105	1,106	1,228	1,239	1,237	1,268	1,527
Social and behavioral sciences	426	357	350	505	379	491	563	567	624	668	820	831	916	1,039	1,049
Psychology	95	87	77	129	113	131	159	170	183	191	270	298	330	374	394
Social sciences	331	270	273	376	266	360	404	397	441	477	550	533	586	665	655
Engineering	737	850	1,079	1,551	1,650	1,992	1,863	2,008	2,223	2,260	2,443	2,572	2,621	2,319	2,450
Non-S&E	3,396	3,590	4,134	4,520	4,674	6,074	5,939	6,760	7,530	8,323	9,137	10,223	11,339	12,067	13,758
Engineering technologies	NA	NA	NA	25	46	40	79	60	58	40	46	55	61	49	62
Black															
All degrees	21,041	19,422	17,152	13,960	13,173	13,455	14,473	15,857	17,420	18,897	20,936	22,954	24,588	26,948	28,616
S&E	2,321	2,003	1,801	1,742	1,784	1,652	1,847	2,090	2,356	2,554	2,849	3,339	3,518	3,817	3,756
Natural sciences	351	382	351	290	301	238	225	261	306	310	347	383	402	476	431
Physical sciences	94	86	107	89	79	78	87	73	98	105	127	147	116	144	146
Biological sciences	206	217	171	151	167	124	110	137	149	135	142	162	198	236	190
Agricultural sciences	51	79	73	50	55	36	28	51	59	70	78	74	88	96	95
Mathematics and computer sciences	200	136	137	233	280	257	302	383	393	406	474	498	530	534	526
Mathematics	133	71	67	53	73	59	70	100	77	98	109	151	151	157	150
Computer sciences	67	65	70	180	207	198	232	283	316	308	365	347	379	377	376
Social and behavioral sciences	1,530	1,239	1,053	889	800	802	933	1,048	1,191	1,274	1,439	1,793	1,912	2,133	2,085
Psychology	506	476	424	426	376	395	471	454	531	544	636	863	947	1,123	1,073
Social sciences	1,024	763	629	463	424	407	462	594	660	730	803	930	965	1,010	1,012
Engineering	240	246	260	330	403	355	387	398	466	564	589	665	674	674	714
Non-S&E	18,720	17,419	15,351	12,218	11,389	11,803	12,626	13,767	15,064	16,343	18,087	19,615	21,070	23,131	24,860
Engineering technologies	NA	NA	NA	37	42	55	44	47	64	61	72	85	81	86	150
Hispanic															
All degrees	7,071	6,470	7,439	7,730	7,781	8,133	8,495	9,684	10,256	11,371	13,177	13,905	15,394	16,360	17,416
S&E	1,325	1,001	1,237	1,514	1,584	1,585	1,587	1,736	1,806	2,092	2,514	2,585	2,730	2,882	3,071
Natural sciences	245	227	251	332	310	266	262	281	288	334	436	392	413	452	453
Physical sciences	69	65	71	127	122	92	98	96	93	114	114	129	127	139	149
Biological sciences	109	115	103	139	126	126	120	136	146	151	138	167	191	208	188
Agricultural sciences	67	47	77	66	62	48	44	49	49	69	184	96	95	105	116
Mathematics and computer sciences	91	61	102	149	183	178	169	213	215	240	244	273	264	268	284
Mathematics	45	36	42	55	60	34	51	85	66	78	75	75	91	71	91
Computer sciences	46	25	60	94	123	144	118	128	149	162	169	198	173	197	193
Social and behavioral sciences	738	498	599	687	579	673	710	774	815	937	1,115	1,209	1,305	1,397	1,527
Psychology	321	191	217	344	271	360	369	391	419	463	558	656	709	771	851
Social sciences	417	307	382	343	308	313	341	383	396	474	557	553	596	626	676
Engineering	251	215	285	346	512	468	446	468	488	581	719	711	748	765	807
Non-S&E	5,746	5,469	6,202	6,216	6,197	6,548	6,908	7,948	8,450	9,279	10,663	11,320	12,664	13,478	14,345
Engineering technologies	NA	NA	NA	6	17	10	9	19	23	25	37	40	47	26	49

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-23.

Earned master's degree, by field, race/ethnicity, and citizenship: 1977–98 (selected years)

Field	1977	1979	1981	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
American Indian/Alaskan Native															
All degrees	968	999	1,034	1,257	1,049	1,082	1,050	1,125	1,228	1,344	1,618	1,542	1,693	1,844	1,951
S&E	148	165	165	228	147	209	181	200	198	253	273	299	304	332	349
Natural sciences	48	50	33	45	23	41	31	34	37	46	44	52	41	57	68
Physical sciences	21	29	11	21	9	18	9	13	18	12	16	19	10	16	24
Biological sciences	15	16	15	18	11	17	14	13	12	26	17	20	17	23	21
Agricultural sciences	12	5	7	6	3	6	8	8	7	8	11	13	14	18	23
Mathematics and computer sciences	15	24	19	48	25	45	13	23	19	22	24	27	30	39	25
Mathematics	12	8	7	7	3	6	6	9	4	8	6	11	6	14	11
Computer sciences	3	16	12	41	22	39	7	14	15	14	18	16	24	25	14
Social and behavioral sciences	62	67	82	88	61	90	102	103	100	135	145	177	177	183	202
Psychology	26	20	32	37	35	33	37	49	38	57	62	85	80	100	112
Social sciences	36	47	50	51	26	57	65	54	62	78	83	92	97	83	90
Engineering	23	24	31	47	38	33	35	40	42	50	60	43	56	53	54
Non-S&E	820	834	869	1,029	902	873	869	925	1,030	1,091	1,345	1,243	1,389	1,512	1,602
Engineering technologies	NA	NA	NA	2	26	2	5	3	5	8	3	6	7	3	6
Other/unknown race/ethnicity															
All degrees	562	837	1,556	5,860	15,329	15,761	19,459	15,627	16,296	16,415	18,299	18,928	19,013	20,060	19,785
S&E	11	294	509	1,469	3,399	3,699	3,770	2,930	3,405	3,545	3,432	3,787	3,866	3,445	3,347
Natural sciences	0	45	57	191	608	404	490	449	557	508	545	600	599	513	553
Physical sciences	0	45	57	121	311	233	218	216	243	205	232	218	236	153	172
Biological sciences	0	0	0	49	251	148	194	187	199	188	202	188	225	222	261
Agricultural sciences	0	0	0	21	46	23	78	46	115	115	111	194	138	138	120
Mathematics and computer sciences	0	65	77	210	726	1,041	1,100	551	592	545	654	663	672	591	605
Mathematics	0	3	2	51	160	145	169	122	223	211	211	216	246	154	168
Computer sciences	0	62	75	159	566	896	931	429	369	334	443	447	426	437	437
Social and behavioral sciences	0	51	24	287	1,229	946	1,024	992	1,116	1,328	1,163	1,415	1,505	1,406	1,323
Psychology	0	16	0	29	452	399	398	448	569	623	427	528	618	556	590
Social sciences	0	35	24	258	777	547	626	544	547	705	736	887	887	850	733
Engineering	11	133	351	781	836	1,308	1,156	938	1,140	1,164	1,070	1,109	1,090	935	866
Non-S&E	551	543	1,047	4,391	11,930	12,062	15,689	12,697	12,891	12,870	14,867	15,141	15,147	16,615	16,438
Engineering technologies	NA	NA	NA	96	44	95	72	57	96	101	104	100	104	39	50
Foreign citizen															
All degrees	17,345	19,427	22,058	26,952	28,264	32,123	34,602	37,611	39,652	44,109	46,506	48,756	48,250	49,477	52,205
S&E	7,805	8,544	9,749	12,506	13,045	15,143	16,338	17,049	18,007	20,150	20,879	21,321	20,579	20,088	21,396
Natural sciences	1,797	1,895	1,864	2,178	2,132	2,504	2,732	2,856	3,035	3,145	3,411	3,299	3,373	3,219	2,998
Physical sciences	656	706	786	1,098	1,056	1,238	1,364	1,504	1,538	1,602	1,770	1,755	1,735	1,646	1,500
Biological sciences	477	464	368	474	509	636	729	749	795	849	933	880	977	908	891
Agricultural sciences	664	725	710	606	567	630	639	603	702	694	708	664	661	665	607
Mathematics and computer sciences	736	937	1,368	2,394	2,903	3,418	3,598	3,878	4,281	4,917	5,007	5,036	4,952	4,936	5,776
Mathematics	370	472	464	685	836	976	1,035	1,059	1,112	1,138	1,095	1,156	1,081	1,001	1,029
Computer sciences	366	465	904	1,709	2,067	2,442	2,563	2,819	3,169	3,779	3,912	3,880	3,871	3,935	4,747
Social and behavioral sciences	1,727	1,752	1,954	2,240	2,229	2,474	2,769	2,795	2,792	2,969	3,104	3,290	3,259	3,299	3,464
Psychology	171	163	270	296	220	259	385	317	302	332	361	484	439	417	469
Social sciences	1,556	1,589	1,684	1,944	2,009	2,215	2,384	2,478	2,490	2,637	2,743	2,806	2,820	2,882	2,995
Engineering	3,545	3,960	4,563	5,694	5,781	6,747	7,239	7,520	7,899	9,119	9,357	9,696	8,995	8,634	9,158
Non-S&E	9,540	10,883	12,309	14,446	15,219	16,980	18,264	20,562	21,645	23,959	25,627	27,435	27,671	29,389	30,809
Engineering technologies	NA	NA	NA	124	127	131	162	172	215	279	291	309	298	261	268

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-23.

Earned master's degree, by field, race/ethnicity, and citizenship: 1977–98 (selected years)

NA = not available

NOTES: Appendix tables with degree data by sex do not match precisely the degree data by race/ethnicity in any field at the associate, bachelor's, or master's degree level. Physical sciences include physics, chemistry, astronomy, and earth, atmospheric, and ocean sciences.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1991–98*, NSF 01-327 (Arlington, VA 2001).

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Appendix table 2-24.
Earned doctoral degrees, by field and sex: 1970–99 (selected years)

Field	1970	1975	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total																		
All degrees	29,498	32,952	31,020	31,297	31,902	32,370	33,500	34,327	36,067	37,534	38,890	39,801	41,034	41,743	42,414	42,555	42,683	41,140
S&E	18,052	18,799	17,775	18,935	19,437	19,894	20,932	21,732	22,868	24,023	24,675	25,443	26,205	26,535	27,229	27,245	27,309	25,953
Natural sciences	8,556	8,103	7,864	8,436	8,483	8,655	9,172	9,185	9,763	10,159	10,435	10,529	11,079	11,024	11,391	11,414	11,534	10,954
Physical	3,893	3,076	2,521	2,934	3,120	3,238	3,350	3,261	3,524	3,626	3,781	3,699	3,977	3,841	3,837	3,768	3,829	3,582
Earth/atmospheric/ocean sciences	498	625	628	599	559	602	695	723	738	815	794	771	824	780	794	878	814	807
Biological and agricultural sciences	4,165	4,402	4,715	4,903	4,804	4,815	5,126	5,202	5,502	5,723	5,862	6,060	6,281	6,412	6,760	6,768	6,891	6,565
Mathematics and computer sciences	1,332	1,360	962	998	1,128	1,190	1,264	1,471	1,597	1,839	1,927	2,026	2,021	2,187	2,043	2,035	2,102	1,935
Mathematics	1,225	1,147	744	688	729	740	749	859	892	1,039	1,058	1,146	1,118	1,190	1,122	1,125	1,177	1,085
Computer sciences	107	213	218	310	399	450	515	612	705	800	869	880	903	997	921	910	925	850
Social and behavioral sciences	4,825	6,538	6,470	6,335	6,450	6,337	6,310	6,532	6,613	6,806	6,873	7,189	7,280	7,307	7,490	7,682	7,743	7,727
Psychology	1,890	2,751	3,098	3,118	3,126	3,173	3,074	3,208	3,281	3,250	3,263	3,420	3,379	3,429	3,491	3,571	3,685	3,667
Social sciences	2,935	3,787	3,372	3,217	3,324	3,164	3,236	3,324	3,332	3,556	3,610	3,769	3,901	3,878	3,999	4,111	4,058	4,060
Engineering	3,446	3,011	2,479	3,166	3,376	3,712	4,187	4,543	4,894	5,214	5,438	5,698	5,822	6,008	6,305	6,114	5,930	5,337
Chemical	457	396	316	504	531	584	685	712	658	691	725	737	725	708	798	767	775	678
Civil	366	361	306	391	429	477	531	538	553	575	594	624	684	656	697	656	651	585
Electrical	857	714	540	716	806	779	1,010	1,137	1,276	1,405	1,483	1,543	1,673	1,731	1,740	1,721	1,596	1,477
Mechanical	635	487	384	513	536	657	715	760	884	875	987	1,030	1,015	1,025	1,052	1,021	1,023	853
Materials	303	272	273	303	305	392	374	380	440	489	485	535	539	588	572	581	565	470
Other	828	781	660	739	769	823	872	1,016	1,083	1,179	1,164	1,229	1,186	1,300	1,446	1,368	1,320	1,274
Male																		
All degrees	25,527	25,751	21,612	20,553	20,595	20,938	21,681	21,814	22,961	23,661	24,454	24,679	25,215	25,329	25,470	25,163	24,825	23,647
S&E	16,404	15,870	13,814	14,044	14,270	14,582	15,270	15,623	16,498	17,091	17,595	17,791	18,285	18,247	18,583	18,302	17,954	16,869
Natural sciences	7,776	6,960	6,328	6,452	6,426	6,484	6,779	6,649	7,100	7,319	7,413	7,311	7,711	7,530	7,680	7,598	7,552	7,233
Physical	3,666	2,812	2,199	2,467	2,610	2,710	2,783	2,642	2,863	2,947	3,011	2,919	3,149	2,963	2,995	2,916	2,902	2,751
Earth/atmospheric/ocean sciences	483	595	564	491	464	490	560	575	597	636	606	611	641	610	622	668	595	597
Biological and agricultural sciences	3,627	3,553	3,565	3,494	3,352	3,284	3,435	3,433	3,641	3,741	3,798	3,782	3,924	3,966	4,063	4,014	4,055	3,885
Mathematics and computer sciences	1,253	1,237	846	859	959	1,000	1,087	1,208	1,329	1,523	1,602	1,624	1,648	1,736	1,673	1,622	1,646	1,502
Mathematics	1,148	1,038	649	582	608	615	628	704	734	840	853	882	882	925	891	862	880	808
Computer sciences	105	199	197	277	351	385	459	504	595	683	749	742	766	811	782	760	766	694
Social and behavioral sciences	4,050	4,913	4,251	3,765	3,734	3,628	3,504	3,597	3,589	3,497	3,646	3,679	3,735	3,660	3,701	3,719	3,599	3,588
Psychology	1,446	1,878	1,787	1,577	1,527	1,475	1,393	1,408	1,368	1,254	1,335	1,332	1,277	1,249	1,163	1,199	1,225	1,220
Social sciences	2,604	3,035	2,464	2,188	2,207	2,153	2,111	2,189	2,221	2,243	2,311	2,347	2,458	2,411	2,538	2,520	2,374	2,368
Engineering	3,430	2,959	2,389	2,968	3,151	3,470	3,901	4,168	4,479	4,747	4,932	5,176	5,187	5,312	5,529	5,363	5,157	4,546
Chemical	454	391	302	463	470	524	620	632	580	608	612	643	612	599	655	645	635	554
Civil	365	356	295	371	408	459	501	484	504	534	544	570	604	580	618	576	551	496
Electrical	854	698	523	681	768	747	962	1,070	1,192	1,326	1,368	1,418	1,526	1,558	1,571	1,571	1,440	1,321
Mechanical	633	483	377	487	518	640	686	731	846	818	942	973	946	961	974	933	930	758
Materials	302	267	259	271	281	347	341	335	391	412	424	457	456	493	489	475	481	382
Other	822	764	633	695	706	753	791	916	966	1,049	1,042	1,115	1,043	1,121	1,222	1,163	1,120	1,035

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 2-24.

Earned doctoral degrees, by field and sex: 1970–99 (selected years)

Field	1970	1975	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Female																		
All degrees	3,971	7,201	9,408	10,744	11,307	11,432	11,819	12,513	13,106	13,873	14,436	15,122	15,819	16,414	16,944	17,251	17,858	17,493
S&E	1,648	2,929	3,961	4,891	5,167	5,312	5,662	6,109	6,370	6,932	7,080	7,652	7,920	8,288	8,646	8,943	9,355	9,084
Natural sciences	780	1,143	1,536	1,984	2,057	2,171	2,393	2,536	2,663	2,840	3,022	3,218	3,368	3,494	3,711	3,816	3,982	3,721
Physical	227	264	322	467	510	528	567	619	661	679	770	780	828	878	842	852	927	831
Earth/atmospheric/ocean sciences	15	30	64	108	95	112	135	148	141	179	188	160	183	170	172	210	219	210
Biological and agricultural sciences	538	849	1,150	1,409	1,452	1,531	1,691	1,769	1,861	1,982	2,064	2,278	2,357	2,446	2,697	2,754	2,836	2,680
Mathematics and computer sciences	79	123	116	139	169	190	177	263	268	316	325	402	373	451	370	413	456	433
Mathematics	77	109	95	106	121	125	121	155	158	199	205	264	236	265	231	263	297	277
Computer sciences	2	14	21	33	48	65	56	108	110	117	120	138	137	186	139	150	159	156
Social and behavioral sciences	775	1,625	2,219	2,570	2,716	2,709	2,806	2,935	3,024	3,309	3,227	3,510	3,545	3,647	3,789	3,963	4,144	4,139
Psychology	444	873	1,311	1,541	1,599	1,698	1,681	1,800	1,913	1,996	1,928	2,088	2,102	2,180	2,328	2,372	2,460	2,447
Social sciences	331	752	908	1,029	1,117	1,011	1,125	1,135	1,111	1,313	1,299	1,422	1,443	1,467	1,461	1,591	1,684	1,692
Engineering	16	52	90	198	225	242	286	375	415	467	506	522	635	696	776	751	773	791
Chemical	3	5	14	41	61	60	65	80	78	83	113	94	113	109	143	122	140	124
Civil	1	5	11	20	21	18	30	54	49	41	50	54	80	76	79	80	100	89
Electrical	3	16	17	35	38	32	48	67	84	79	115	125	147	173	169	150	156	156
Mechanical	2	4	7	26	18	17	29	29	38	57	45	57	69	64	78	88	93	95
Materials	1	5	14	32	24	45	33	45	49	77	61	78	83	95	83	106	84	88
Other	6	17	27	44	63	70	81	100	117	130	122	114	143	179	224	205	200	239

NOTE: Physical sciences include physics, chemistry, and astronomy.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Degrees: 1966–98*, NSF 01-325 (Arlington, VA, 2001); and NSF/SRS, *Science and Engineering Doctorate Awards: 1999*, NSF 01-314 (Arlington, VA, 2001).

Appendix table 2-25.

Earned doctoral degrees, by field, race/ethnicity, and citizenship: 1977–99 (selected years)

Field and race/ethnicity	1977	1979	1981	1983	1985	1987	1989	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total ^a																
All degrees	31,716	31,239	31,356	31,281	31,297	32,370	34,327	37,534	38,890	39,801	41,034	41,743	42,414	42,555	42,683	41,140
Total S&E	18,008	17,872	18,257	18,635	18,935	19,894	21,732	24,023	24,675	25,443	26,205	26,535	27,229	27,245	27,309	25,953
Natural sciences	7,676	7,817	7,995	8,194	8,436	8,655	9,186	10,159	10,435	10,529	11,079	11,024	11,391	11,414	11,534	10,954
Mathematics and computer sciences	964	979	960	987	998	1,190	1,471	1,839	1,927	2,026	2,021	2,187	2,043	2,035	2,102	1,935
Social and behavioral sciences	6,720	6,582	6,774	6,673	6,335	6,337	6,532	6,806	6,873	7,189	7,280	7,307	7,490	7,682	7,743	7,727
Engineering	2,648	2,494	2,528	2,781	3,166	3,712	4,543	5,214	5,438	5,698	5,822	6,008	6,305	6,114	5,930	5,337
Non-S&E	13,708	13,367	13,099	12,646	12,362	12,476	12,595	13,511	14,215	14,358	14,829	15,208	15,185	15,310	15,374	15,187
U.S. citizen or permanent resident																
All degrees	27,487	26,784	26,341	25,634	24,694	24,562	25,027	27,430	27,990	28,708	30,894	32,059	31,518	31,086	31,166	29,922
Total S&E	14,881	14,711	14,654	14,518	14,065	14,055	14,592	15,914	15,942	16,573	18,187	18,996	18,639	18,402	18,268	17,428
Natural sciences	6,427	6,604	6,640	6,706	6,634	6,450	6,629	7,063	7,039	7,092	8,106	8,362	8,068	7,908	7,873	7,393
Mathematics and computer sciences	769	778	713	664	631	671	824	969	996	1,099	1,200	1,387	1,162	1,151	1,227	1,088
Social and behavioral sciences	5,886	5,712	5,830	5,666	5,206	5,021	4,910	5,408	5,387	5,685	5,828	5,905	6,022	6,014	6,123	6,074
Engineering	1,799	1,617	1,471	1,482	1,594	1,913	2,229	2,474	2,520	2,697	3,053	3,342	3,387	3,329	3,045	2,873
Non-S&E	12,606	12,073	11,687	11,116	10,629	10,507	10,435	11,516	12,048	12,135	12,707	13,063	12,879	12,684	12,898	12,494
White, all degrees	23,654	22,396	22,470	22,251	21,306	21,122	21,570	23,185	23,625	24,052	24,594	24,719	24,691	23,958	24,313	23,725
Total S&E	12,875	12,314	12,573	12,671	12,169	12,052	12,501	13,323	13,326	13,737	13,889	13,902	14,008	13,829	14,026	13,656
Natural sciences	5,598	5,620	5,771	5,981	5,903	5,663	5,800	6,111	6,019	5,950	6,123	5,978	5,955	5,939	6,047	5,798
Mathematics and computer sciences	671	658	610	569	527	548	688	774	803	886	880	988	835	840	937	854
Social and behavioral sciences	5,177	4,879	5,099	4,993	4,551	4,383	4,287	4,601	4,624	4,876	4,866	4,846	4,956	4,763	4,871	4,903
Engineering	1,429	1,157	1,093	1,128	1,188	1,458	1,726	1,837	1,880	2,025	2,020	2,090	2,262	2,287	2,171	2,101
Non-S&E	10,779	10,082	9,897	9,580	9,137	9,070	9,069	9,862	10,299	10,315	10,705	10,817	10,683	10,129	10,287	10,069
Asian/Pacific Islander, all degrees	910	1,102	1,073	1,042	1,070	1,168	1,268	1,531	1,764	2,017	3,546	4,309	3,699	3,122	2,729	2,518
Total S&E	745	884	827	780	809	925	986	1,180	1,345	1,610	2,989	3,671	3,095	2,539	2,148	1,951
Natural sciences	342	377	344	359	346	369	403	474	560	686	1,481	1,858	1,551	1,260	1,093	960
Mathematics and computer sciences	42	55	56	54	50	67	76	123	138	156	259	345	251	206	162	145
Social and behavioral sciences	112	146	142	120	132	162	146	178	196	241	382	435	396	366	337	331
Engineering	249	306	285	247	281	327	361	405	451	527	867	1,033	897	707	556	515
Non-S&E	165	218	246	262	261	243	282	351	419	407	557	638	604	583	581	567
Black, all degrees	1,191	1,112	1,110	1,005	1,043	910	963	1,166	1,116	1,280	1,279	1,477	1,456	1,488	1,603	1,729
Total S&E	342	347	346	338	374	319	367	464	408	469	500	560	576	623	646	715
Natural sciences	85	84	89	84	100	95	106	116	107	136	153	171	187	196	194	220
Mathematics and computer sciences	9	12	11	6	10	13	9	19	9	14	21	16	20	11	30	30
Social and behavioral sciences	233	231	227	219	230	186	219	274	243	269	272	302	295	318	338	369
Engineering	15	20	19	29	34	25	33	55	49	50	54	71	74	98	84	96
Non-S&E	849	765	764	667	669	591	596	702	708	811	779	917	880	865	957	1,014
Hispanic, all degrees	489	547	529	608	634	708	694	867	909	973	1,030	1,061	1,103	1,191	1,319	1,246
Total S&E	203	234	240	284	296	357	382	492	513	542	548	571	618	656	753	688
Natural sciences	76	84	93	86	107	138	157	191	208	226	254	234	225	257	274	256
Mathematics and computer sciences	12	12	5	7	18	15	15	21	20	23	20	21	26	37	41	29
Social and behavioral sciences	91	114	126	162	149	170	163	220	214	227	208	239	270	267	328	321
Engineering	24	24	16	29	22	34	47	60	71	66	66	77	97	95	110	82
Non-S&E	286	313	289	324	338	351	312	375	396	431	482	490	485	535	566	558

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-25.

Earned doctoral degrees, by field, race/ethnicity, and citizenship: 1977–99

Field and race/ethnicity	1977	1979	1981	1983	1985	1987	1989	1991	1992	1993	1994	1995	1996	1997	1998	1999
U.S. citizen or permanent resident																
American Indian/Alaskan Native, all degrees																
Total S&E	66	81	85	82	96	115	94	132	149	120	143	149	188	166	189	219
Total S&E	31	29	28	30	41	53	53	56	69	43	64	69	97	79	96	117
Natural sciences	4	6	8	13	21	20	25	27	26	17	24	26	34	24	34	38
Mathematics and computer sciences ...	1	1	1	1	0	3	2	1	4	2	3	2	5	2	6	2
Social and behavioral sciences	15	19	15	15	19	23	19	22	28	22	31	31	43	36	43	65
Engineering	1	3	4	1	1	7	7	6	11	2	6	10	15	17	13	12
Non-S&E	35	52	57	52	55	62	41	76	80	77	79	80	91	87	93	102
Temporary resident																
All degrees																
Total S&E	3,448	3,587	3,940	4,498	5,227	5,612	6,648	9,311	9,953	9,932	9,406	8,810	9,614	9,178	9,498	9,068
Total S&E	2,675	2,689	2,983	3,412	4,047	4,468	5,391	7,641	8,092	8,113	7,521	6,994	7,806	7,498	7,779	7,241
Natural sciences	1,079	1,046	1,140	1,273	1,517	1,704	1,975	2,936	3,213	3,191	2,815	2,501	3,026	3,022	3,216	3,117
Mathematics and computer sciences	170	181	226	281	327	445	524	846	876	865	791	747	818	772	776	774
Social and behavioral sciences	651	645	675	688	784	787	952	1,226	1,260	1,273	1,262	1,222	1,242	1,154	1,203	1,157
Engineering	775	817	942	1,170	1,419	1,532	1,940	2,633	2,743	2,784	2,653	2,524	2,720	2,550	2,584	2,193
Non-S&E	773	898	957	1,086	1,180	1,144	1,257	1,670	1,861	1,819	1,885	1,816	1,808	1,680	1,719	1,827
Citizenship unknown																
All degrees																
Total S&E	781	868	1,075	1,149	1,376	2,196	2,652	793	947	1,161	734	874	1,299	3,641	2,019	2,150
Total S&E	452	472	620	705	823	1,371	1,749	468	641	757	497	545	784	1,345	1,262	1,284
Natural sciences	170	167	215	215	285	501	582	165	185	247	161	170	297	484	445	444
Mathematics and computer sciences ...	25	20	21	42	40	74	123	24	55	62	30	53	63	112	99	73
Social and behavioral sciences	183	225	269	319	345	529	670	172	226	231	190	180	226	514	417	496
Engineering	74	60	115	129	153	267	374	107	175	217	116	142	198	235	301	271
Non-S&E	329	396	455	444	553	825	903	325	306	404	237	329	499	1,747	757	866

^aData include all doctorates awarded to U.S. citizens and permanent residents, temporary residents, and people whose citizenship is unknown.

NOTE: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Doctorate Awards: 1999*, NSF 01-314 (Arlington, VA, 2001), and previous editions.

Appendix table 2-26.

Earned doctoral degrees, by field and citizenship: 1986–99

Field	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total^a														
All degrees	31,902	32,370	33,500	34,327	36,067	37,534	38,890	39,801	41,034	41,743	42,414	42,555	42,683	41,140
Total S&E	19,437	19,894	20,932	21,732	22,868	24,023	24,675	25,443	26,205	26,535	27,229	27,245	27,309	25,953
Natural sciences	8,483	8,655	9,172	9,185	9,763	10,159	10,435	10,529	11,079	11,024	11,391	11,414	11,534	10,954
Mathematics and computer sciences	1,128	1,190	1,264	1,471	1,597	1,839	1,927	2,026	2,021	2,187	2,043	2,035	2,102	1,935
Social and behavioral sciences	6,450	6,337	6,310	6,532	6,613	6,806	6,873	7,189	7,280	7,307	7,490	7,682	7,743	7,727
Engineering	3,376	3,712	4,187	4,543	4,894	5,214	5,438	5,698	5,822	6,008	6,305	6,114	5,930	5,337
U.S. citizen														
All degrees	23,086	22,984	23,290	23,401	24,905	25,573	26,010	26,449	27,147	27,740	27,751	28,156	28,462	27,622
Total S&E	13,022	12,966	13,368	13,468	14,167	14,629	14,559	14,932	15,166	15,487	15,630	16,122	16,2461	5,783
Natural sciences	6,139	6,070	6,281	6,226	6,506	6,590	6,502	6,462	6,646	6,601	6,558	6,805	6,863	6,587
Mathematics and computer sciences	568	588	626	731	723	851	876	921	930	1,038	912	961	1,050	950
Social and behavioral sciences	4,932	4,750	4,681	4,647	4,981	5,102	5,072	5,321	5,375	5,462	5,566	5,620	5,767	5,772
Engineering	1,383	1,558	1,780	1,864	1,957	2,086	2,109	2,228	2,215	2,386	2,594	2,736	2,566	2,474
Non-U.S. citizen														
All degrees	6,709	7,190	7,817	8,274	9,791	11,168	11,933	12,191	13,153	13,129	13,381	12,108	12,202	11,368
Total S&E	5,154	5,557	6,066	6,515	7,768	8,926	9,475	9,754	10,542	10,503	10,815	9,778	9,801	8,886
Natural sciences	1,896	2,084	2,333	2,378	2,974	3,409	3,750	3,821	4,275	4,262	4,536	4,125	4,226	3,923
Mathematics and computer sciences	478	528	567	617	797	964	996	1,043	1,061	1,096	1,068	962	953	912
Social and behavioral sciences	1,065	1,058	1,079	1,215	1,331	1,532	1,575	1,637	1,715	1,665	1,698	1,548	1,559	1,459
Engineering	1,715	1,887	2,087	2,305	2,666	3,021	3,154	3,253	3,491	3,480	3,513	3,143	3,063	2,592
Non-U.S. citizen with permanent visas														
All degrees	1,433	1,578	1,622	1,626	1,698	1,857	1,980	2,259	3,747	4,319	3,767	2,930	2,704	2,300
Total S&E	994	1,089	1,130	1,124	1,197	1,285	1,383	1,641	3,021	3,509	3,009	2,280	2,022	1,645
Natural sciences	321	380	429	403	437	473	537	630	1,460	1,761	1,510	1,103	1,010	806
Mathematics and computer sciences	83	83	86	93	102	118	120	178	270	349	250	190	177	138
Social and behavioral sciences	247	271	249	263	269	306	315	364	453	443	456	394	356	302
Engineering	343	355	366	365	389	388	411	469	838	956	793	593	479	399
Non-U.S. citizen with temporary visas														
All degrees	5,276	5,612	6,195	6,648	8,093	9,311	9,953	9,932	9,406	8,810	9,614	9,178	9,498	9,068
Total S&E	4,160	4,468	4,936	5,391	6,571	7,641	8,092	8,113	7,521	6,994	7,806	7,498	7,779	7,241
Natural sciences	1,575	1,704	3,032	3,416	2,537	2,936	3,213	3,191	2,815	2,501	3,026	3,022	3,216	3,117
Mathematics and computer sciences	395	445	481	524	695	846	876	865	791	747	818	772	776	774
Social and behavioral sciences	818	787	830	952	1,062	1,226	1,260	1,273	1,262	1,222	1,242	1,154	1,203	1,157
Engineering	1,372	1,532	1,721	1,940	2,277	2,633	2,743	2,784	2,653	2,524	2,720	2,550	2,584	2,193
Citizenship unknown														
All degrees	2,107	2,196	2,393	2,652	1,371	793	947	1,161	734	874	1,299	3,641	2,019	2,150
Total S&E	1,261	1,371	1,498	1,749	933	468	641	757	497	545	784	1,345	1,262	1,284
Natural sciences	448	446	557	582	284	165	185	247	161	170	297	484	445	444
Mathematics and computer sciences	82	74	71	123	77	24	55	62	30	53	63	112	99	73
Social and behavioral sciences	453	529	550	670	301	172	226	231	190	180	226	514	417	496
Engineering	278	267	320	374	271	107	175	217	116	142	198	235	301	271

^aData include all doctorates awarded to U.S. citizens and permanent residents, temporary residents, and people whose citizenship is unknown.

NOTE: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Doctorate Awards: 1999*, NSF 01-314 (Arlington, VA, 2001).

Appendix table 2-27.

Full-time S&E graduate students, by source and mechanism of primary support: 1980–99

Year	All mechanisms		Research assistantships		Fellowships		Traineeships		Teaching assistantships		Other		Self-support	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total														
1980	238,448	100.0	51,567	21.6	20,516	8.6	17,550	7.4	53,890	22.6	19,446	8.2	75,479	31.7
1981	242,076	100.0	52,719	21.8	20,104	8.3	16,774	6.9	55,745	23.0	20,206	8.3	76,528	31.6
1982	244,796	100.0	52,580	21.5	20,865	8.5	14,640	6.0	58,334	23.8	20,455	8.4	77,922	31.8
1983	252,055	100.0	54,904	21.8	21,351	8.5	13,514	5.4	60,071	23.8	20,955	8.3	81,260	32.2
1984	253,922	100.0	57,735	22.7	21,624	8.5	13,465	5.3	61,256	24.1	20,692	8.1	79,150	31.2
1985	257,287	100.0	60,995	23.7	22,540	8.8	13,665	5.3	61,822	24.0	20,635	8.0	77,630	30.2
1986	266,168	100.0	66,010	24.8	22,954	8.6	13,526	5.1	62,552	23.5	22,246	8.4	78,880	29.6
1987	271,056	100.0	70,214	25.9	21,953	8.1	14,096	5.2	62,847	23.2	22,166	8.2	79,780	29.4
1988	275,185	100.0	74,588	27.1	22,353	8.1	14,397	5.2	63,060	22.9	21,584	7.8	79,203	28.8
1989	282,711	100.0	79,059	28.0	23,461	8.3	14,527	5.1	64,301	22.7	21,082	7.5	80,281	28.4
1990	292,823	100.0	80,746	27.6	25,254	8.6	15,212	5.2	64,958	22.2	22,265	7.6	84,388	28.8
1991	307,055	100.0	85,175	27.7	26,695	8.7	15,417	5.0	65,222	21.2	22,955	7.5	91,591	29.8
1992	322,609	100.0	88,030	27.3	28,627	8.9	15,375	4.8	65,710	20.4	23,556	7.3	101,311	31.4
1993	329,701	100.0	90,154	27.3	29,132	8.8	15,458	4.7	67,298	20.4	21,360	6.5	106,299	32.2
1994	332,149	100.0	92,008	27.7	28,894	8.7	15,692	4.7	66,851	20.1	21,650	6.5	107,054	32.2
1995	329,356	100.0	89,946	27.3	28,891	8.8	15,953	4.8	65,983	20.0	21,868	6.6	106,715	32.4
1996	328,628	100.0	87,694	26.7	28,863	8.8	15,488	4.7	65,756	20.0	21,277	6.5	109,550	33.3
1997	327,310	100.0	88,002	26.9	28,930	8.8	14,484	4.4	65,422	20.0	21,671	6.6	108,801	33.2
1998	327,447	100.0	88,098	26.9	29,080	8.9	14,935	4.6	65,170	19.9	21,858	6.7	108,306	33.1
1999	334,405	100.0	91,308	27.3	30,034	9.0	14,711	4.4	66,317	19.8	22,695	6.8	109,340	32.7
Primary support from Federal sources														
1980	52,963	100.0	29,316	55.4	4,629	8.7	13,306	25.1	662	1.2	5,050	9.5	NA	NA
1981	50,901	100.0	29,146	57.3	4,093	8.0	12,175	23.9	619	1.2	4,868	9.6	NA	NA
1982	47,407	100.0	28,313	59.7	4,093	8.6	10,077	21.3	428	0.9	4,496	9.5	NA	NA
1983	47,755	100.0	29,152	61.0	4,109	8.6	9,114	19.1	498	1.0	4,882	10.2	NA	NA
1984	47,784	100.0	29,463	61.7	4,116	8.6	8,970	18.8	400	0.8	4,835	10.1	NA	NA
1985	49,051	100.0	30,433	62.0	4,416	9.0	8,954	18.3	549	1.1	4,699	9.6	NA	NA
1986	51,361	100.0	32,739	63.7	4,596	8.9	8,688	16.9	495	1.0	4,843	9.4	NA	NA
1987	53,538	100.0	34,996	65.4	4,445	8.3	8,922	16.7	444	0.8	4,731	8.8	NA	NA
1988	55,489	100.0	36,752	66.2	4,566	8.2	8,664	15.6	504	0.9	5,003	9.0	NA	NA
1989	57,442	100.0	38,555	67.1	5,175	9.0	8,682	15.1	490	0.9	4,540	7.9	NA	NA
1990	59,272	100.0	38,504	65.0	6,314	10.7	9,242	15.6	609	1.0	4,603	7.8	NA	NA
1991	63,014	100.0	40,790	64.7	7,445	11.8	9,630	15.3	476	0.8	4,673	7.4	NA	NA
1992	65,626	100.0	42,586	64.9	7,757	11.8	10,054	15.3	643	1.0	4,586	7.0	NA	NA
1993	67,688	100.0	44,502	65.7	7,510	11.1	10,187	15.0	846	1.2	4,643	6.9	NA	NA
1994	68,566	100.0	45,621	66.5	6,941	10.1	10,418	15.2	780	1.1	4,806	7.0	NA	NA
1995	67,310	100.0	44,597	66.3	6,918	10.3	10,244	15.2	739	1.1	4,812	7.1	NA	NA
1996	65,251	100.0	43,370	66.5	7,045	10.8	9,876	15.1	843	1.3	4,117	6.3	NA	NA
1997	64,529	100.0	43,328	67.1	7,074	11.0	9,298	14.4	908	1.4	3,921	6.1	NA	NA
1998	63,759	100.0	41,826	65.6	7,033	11.0	9,658	15.1	1,120	1.8	4,122	6.5	NA	NA
1999	65,764	100.0	43,108	65.5	7,336	11.2	9,638	14.7	997	1.5	4,685	7.1	NA	NA

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-27.

Full-time S&E graduate students, by source and mechanism of primary support: 1980–99

Year	All mechanisms		Research assistantships		Fellowships		Traineeships		Teaching assistantships		Other		Self-support	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Primary support from non-Federal sources														
1980	110,006	100.0	22,251	20.2	15,887	14.4	4,244	3.9	53,228	48.4	14,396	13.1	NA	NA
1981	114,647	100.0	23,573	20.6	16,011	14.0	4,599	4.0	55,126	48.1	15,338	13.4	NA	NA
1982	119,467	100.0	24,267	20.3	16,772	14.0	4,563	3.8	57,906	48.5	15,959	13.4	NA	NA
1983	123,040	100.0	25,752	20.9	17,242	14.0	4,400	3.6	59,573	48.4	16,073	13.1	NA	NA
1984	126,988	100.0	28,272	22.3	17,508	13.8	4,495	3.5	60,856	47.9	15,857	12.5	NA	NA
1985	130,606	100.0	30,562	23.4	18,124	13.9	4,711	3.6	61,273	46.9	15,936	12.2	NA	NA
1986	135,927	100.0	33,271	24.5	18,358	13.5	4,838	3.6	62,057	45.7	17,403	12.8	NA	NA
1987	137,738	100.0	35,218	25.6	17,508	12.7	5,174	3.8	62,403	45.3	17,435	12.7	NA	NA
1988	140,493	100.0	37,836	26.9	17,787	12.7	5,733	4.1	62,556	44.5	16,581	11.8	NA	NA
1989	144,988	100.0	40,504	27.9	18,286	12.6	5,845	4.0	63,811	44.0	16,542	11.4	NA	NA
1990	149,163	100.0	42,242	28.3	18,940	12.7	5,970	4.0	64,349	43.1	17,662	11.8	NA	NA
1991	152,450	100.0	44,385	29.1	19,250	12.6	5,787	3.8	64,746	42.5	18,282	12.0	NA	NA
1992	155,672	100.0	45,444	29.2	20,870	13.4	5,321	3.4	65,067	41.8	18,970	12.2	NA	NA
1993	155,714	100.0	45,652	29.3	21,622	13.9	5,271	3.4	66,452	42.7	16,717	10.7	NA	NA
1994	156,529	100.0	46,387	29.6	21,953	14.0	5,274	3.4	66,071	42.2	16,844	10.8	NA	NA
1995	155,331	100.0	45,349	29.2	21,973	14.1	5,709	3.7	65,244	42.0	17,056	11.0	NA	NA
1996	153,827	100.0	44,324	28.8	21,818	14.2	5,612	3.6	64,913	42.2	17,160	11.2	NA	NA
1997	153,980	100.0	44,674	29.0	21,856	14.2	5,186	3.4	64,514	41.9	17,750	11.5	NA	NA
1998	155,382	100.0	46,272	29.8	22,047	14.2	5,277	3.4	64,050	41.2	17,736	11.4	NA	NA
1999	159,301	100.0	48,200	30.3	22,698	14.2	5,073	3.2	65,320	41.0	18,010	11.3	NA	NA

NA = not available

NOTE: S&E includes the health fields (i.e., medical sciences and other life sciences).

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Graduate Students and Postdoctorates in Science and Engineering, various years, unpublished tabulations.

Appendix table 2-28.

Full-time S&E graduate students, by field and mechanism of primary support: 1999

Field	All mechanisms		Research assistantships		Fellowships		Traineeships		Teaching assistantships		Other		Self-support	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total S&E	334,405	100.0	91,308	27.3	30,034	9.0	14,711	4.4	66,317	19.8	22,695	6.8	109,340	32.7
Total sciences	266,573	100.0	62,633	23.5	23,973	9.0	13,947	5.2	55,598	20.9	18,293	6.9	92,129	34.6
Physical sciences	26,640	100.0	11,270	42.3	2,199	8.3	383	1.4	10,873	40.8	565	2.1	1,350	5.1
Astronomy	808	100.0	416	51.5	118	14.6	14	1.7	217	26.9	15	1.9	28	3.5
Chemistry	15,963	100.0	6,427	40.3	1,229	7.7	260	1.6	7,050	44.2	282	1.8	715	4.5
Physics	9,661	100.0	4,347	45.0	849	8.8	109	1.1	3,589	37.1	240	2.5	527	5.5
Other	208	100.0	80	38.5	3	1.4	0	0.0	17	8.2	28	13.5	80	38.5
Mathematics	11,792	100.0	1,270	10.8	1,035	8.8	112	0.9	6,762	57.3	626	5.3	1,987	16.9
Computer sciences	22,708	100.0	4,895	21.6	1,006	4.4	212	0.9	4,385	19.3	1,480	6.5	10,730	47.3
Environmental sciences ...	10,492	100.0	4,251	40.5	930	8.9	109	1.0	2,613	24.9	660	6.3	1,929	18.4
Atmospheric sciences....	793	100.0	550	69.4	42	5.3	1	0.1	98	12.4	43	5.4	59	7.4
Earth sciences	5,239	100.0	1,796	34.3	566	10.8	35	0.7	1,836	35.0	320	6.1	686	13.1
Ocean sciences	2,130	100.0	1,202	56.4	180	8.5	11	0.5	230	10.8	155	7.3	352	16.5
Other	2,330	100.0	703	30.2	142	6.1	62	2.7	449	19.3	142	6.1	832	35.7
Life sciences	106,968	100.0	28,968	27.1	8,985	8.4	10,588	9.9	13,002	12.2	7,662	7.2	37,763	35.3
Agricultural sciences.....	9,210	100.0	5,126	55.7	463	5.0	94	1.0	1,151	12.5	443	4.8	1,933	21.0
Biological sciences	47,268	100.0	18,499	39.1	5,803	12.3	5,285	11.2	8,767	18.5	2,045	4.3	6,869	14.5
Medical sciences	16,215	100.0	3,186	19.6	1,544	9.5	1,778	11.0	1,312	8.1	1,449	8.9	6,946	42.8
Other	34,275	100.0	2,157	6.3	1,175	3.4	3,431	10.0	1,772	5.2	3,725	10.9	22,015	64.2
Psychology	34,715	100.0	4,795	13.8	2,478	7.1	1,022	2.9	6,032	17.4	3,580	10.3	16,808	48.4
Social sciences	53,258	100.0	7,184	13.5	7,340	13.8	1,521	2.9	11,931	22.4	3,720	7.0	21,562	40.5
Anthropology	5,814	100.0	547	9.4	1,257	21.6	78	1.3	1,374	23.6	402	6.9	2,156	37.1
Economics	10,076	100.0	1,909	18.9	1,519	15.1	212	2.1	2,891	28.7	601	6.0	2,944	29.2
History of science	429	100.0	16	3.7	134	31.2	23	5.4	117	27.3	22	5.1	117	27.3
Linguistics	2,182	100.0	187	8.6	338	15.5	72	3.3	664	30.4	255	11.7	666	30.5
Political science	16,138	100.0	1,614	10.0	2,296	14.2	760	4.7	2,653	16.4	1,119	6.9	7,696	47.7
Sociology	6,796	100.0	1,056	15.5	939	13.8	211	3.1	2,309	34.0	295	4.3	1,986	29.2
Other	11,823	100.0	1,855	15.7	857	7.2	165	1.4	1,923	16.3	1,026	8.7	5,997	50.7
Total engineering	67,832	100.0	28,675	42.3	6,061	8.9	764	1.1	10,719	15.8	4,402	6.5	17,211	25.4
Aeronautical/astronautical ...	2,645	100.0	1,224	46.3	290	11.0	19	0.7	350	13.2	245	9.3	517	19.5
Chemical	5,569	100.0	2,922	52.5	834	15.0	65	1.2	968	17.4	128	2.3	652	11.7
Civil	11,178	100.0	4,099	36.7	837	7.5	192	1.7	1,788	16.0	697	6.2	3,565	31.9
Electrical/electronics	20,224	100.0	8,407	41.6	1,361	6.7	76	0.4	3,389	16.8	1,320	6.5	5,671	28.0
Industrial	5,284	100.0	1,410	26.7	242	4.6	22	0.4	880	16.7	553	10.5	2,177	41.2
Mechanical	10,333	100.0	4,647	45.0	872	8.4	142	1.4	1,946	18.8	629	6.1	2,097	20.3
Materials	3,537	100.0	2,258	63.8	337	9.5	28	0.8	379	10.7	117	3.3	418	11.8
Other	9,062	100.0	3,708	40.9	1,288	14.2	220	2.4	1,019	11.2	713	7.9	2,114	23.3

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Graduate Students and Postdoctorates in Science and Engineering, 1999, unpublished tabulations.

Appendix table 2-29.

Full-time S&E graduate students whose primary source of support is the Federal Government, by field and mechanism of primary support: 1999
 (Percentages)

Field	All mechanisms	Research assistantships	Fellowships	Traineeships	Teaching assistantships	Other
Total S&E	19.7	47.2	24.4	65.5	1.5	20.6
Total sciences	18.7	48.1	24.1	67.0	1.6	20.3
Physical sciences	34.7	70.6	32.1	74.4	1.3	25.7
Astronomy	48.1	78.4	47.5	28.6	0.5	13.3
Chemistry	31.3	67.5	28.7	76.9	0.7	19.1
Physics	39.4	74.7	34.9	74.3	2.7	35.8
Other	24.5	58.8	0.0	0.0	5.9	10.7
Mathematics	9.4	46.8	24.3	42.0	0.7	26.4
Computer sciences	14.8	52.6	32.9	23.1	0.2	27.0
Environmental sciences ...	28.5	58.3	27.4	38.5	1.5	26.2
Atmospheric sciences ...	61.2	78.2	38.1	0.0	0.0	90.7
Earth sciences	24.1	57.9	26.1	28.6	1.6	11.3
Ocean sciences	43.8	65.6	25.0	100.0	3.5	51.6
Other	13.2	31.4	32.4	33.9	0.2	12.7
Life sciences	25.0	47.1	30.4	77.3	3.3	23.2
Agricultural sciences	20.7	32.8	22.7	16.0	3.6	15.6
Biological sciences	35.0	53.5	32.5	74.6	3.1	26.3
Medical sciences	22.2	45.1	30.0	71.5	1.8	27.7
Other	13.8	28.7	24.1	86.2	5.5	20.7
Psychology	9.4	30.0	25.9	50.2	1.4	16.1
Social sciences	5.9	20.4	11.6	15.1	1.0	12.7
Anthropology	6.8	17.2	18.2	16.7	0.8	12.4
Economics	7.1	24.7	8.6	9.4	0.9	10.5
History of science	4.4	12.5	11.9	0.0	0.0	4.5
Linguistics	5.1	19.8	13.9	16.7	0.5	4.7
Political science	3.4	7.3	8.9	6.2	1.2	12.8
Sociology	7.2	22.7	9.7	50.2	1.3	8.5
Other	7.3	27.0	15.1	19.4	1.1	17.5
Total engineering	23.5	45.2	25.9	37.8	1.1	22.1
Aeronautical/ astronautical	37.2	60.7	33.1	5.3	0.6	57.6
Chemical	29.8	44.7	32.5	78.5	1.3	13.3
Civil	15.0	31.9	25.2	14.6	0.9	15.5
Electrical/electronics	22.8	48.8	20.6	23.7	0.3	15.4
Industrial	12.8	26.8	29.8	50.0	0.5	38.0
Mechanical	25.1	47.3	29.5	22.5	0.6	15.7
Materials	37.8	53.2	25.2	42.9	6.9	9.4
Other	26.3	46.6	23.1	61.8	3.6	26.1

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Graduate Students and Postdoctorates in Science and Engineering, 1999, unpublished tabulations.

Appendix table 2-30.

Full-time S&E graduate students with primary support from Federal Government, by Federal agency: 1980–99

Year	All Federal agencies		National Institutes of Health		Department of Health and Human Services		National Science Foundation		Department of Defense		Department of Agriculture ^a		National Aeronautics and Space Administration		All other agencies	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1980	52,963	100.0	11,499	21.7	7,523	14.2	9,348	17.7	5,251	9.9	NA	NA	NA	NA	19,342	36.5
1981	50,901	100.0	11,179	22.0	6,429	12.6	9,143	18.0	5,664	11.1	NA	NA	NA	NA	18,486	36.3
1982	47,407	100.0	10,814	22.8	4,975	10.5	9,257	19.5	5,941	12.5	NA	NA	NA	NA	16,420	34.6
1983	47,755	100.0	10,810	22.6	4,179	8.8	9,524	19.9	6,969	14.6	NA	NA	NA	NA	16,273	34.1
1984	47,784	100.0	10,983	23.0	4,124	8.6	9,848	20.6	7,125	14.9	NA	NA	NA	NA	15,704	32.9
1985	49,051	100.0	11,112	22.7	4,740	9.7	10,180	20.8	7,326	14.9	2,171	4.4	NA	NA	13,522	27.6
1986	51,361	100.0	11,877	23.1	4,500	8.8	10,826	21.1	7,940	15.5	2,328	4.5	NA	NA	13,890	27.0
1987	53,538	100.0	12,944	24.2	4,247	7.9	11,247	21.0	8,795	16.4	2,684	5.0	NA	NA	13,621	25.4
1988	55,489	100.0	13,715	24.7	4,186	7.5	11,634	21.0	9,546	17.2	2,591	4.7	NA	NA	13,817	24.9
1989	57,442	100.0	14,357	25.0	4,335	7.5	11,900	20.7	9,140	15.9	2,728	4.7	NA	NA	14,982	26.1
1990	59,272	100.0	14,996	25.3	4,526	7.6	12,025	20.3	8,868	15.0	2,722	4.6	NA	NA	16,135	27.2
1991	63,014	100.0	16,018	25.4	4,475	7.1	12,666	20.1	9,128	14.5	3,075	4.9	NA	NA	17,652	28.0
1992	65,626	100.0	17,093	26.0	4,335	6.6	13,366	20.4	9,247	14.1	3,216	4.9	NA	NA	18,369	28.0
1993	67,688	100.0	18,137	26.8	3,901	5.8	13,530	20.0	9,750	14.4	3,324	4.9	NA	NA	19,046	28.1
1994	68,566	100.0	18,295	26.7	4,385	6.4	13,990	20.4	9,449	13.8	3,422	5.0	NA	NA	19,025	27.7
1995	67,310	100.0	18,111	26.9	4,676	6.9	13,661	20.3	9,339	13.9	3,254	4.8	NA	NA	18,269	27.1
1996	65,251	100.0	17,932	27.5	4,439	6.8	13,412	20.6	8,802	13.5	3,004	4.6	2,309	3.5	15,353	23.5
1997	64,529	100.0	18,087	28.0	4,450	6.9	13,362	20.7	9,021	14.0	2,646	4.1	2,586	4.0	14,377	22.3
1998	63,759	100.0	18,138	28.4	4,489	7.0	13,459	21.1	8,259	13.0	2,485	3.9	2,646	4.2	14,283	22.4
1999	65,764	100.0	19,010	28.9	4,316	6.6	13,849	21.1	8,037	12.2	2,643	4.0	2,597	3.9	15,312	23.3

NA = not available

^aData were reported for the first time in 1985 for the Department of Agriculture and in 1996 for the National Aeronautics and Space Administration.

NOTE: Percentages may not total 100 because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Graduate Students and Postdoctorates in Science and Engineering, various years, unpublished tabulations.

Science & Engineering Indicators – 2002

Appendix table 2-31.

Primary mechanisms of support for S&E Ph.D. recipients, by citizenship, sex and race/ethnicity: 1999

Citizenship, sex, and race/ethnicity	All mechanisms		Research assistantships		Fellowships ^a		Traineeships ^b		Teaching assistantships		Other ^c		Personal ^d		Unknown	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Non-U.S. citizen																
Temporary resident	7,528	100.0	3,230	42.9	1,101	14.6	24	0.3	1,365	18.1	795	10.6	510	6.8	503	6.7
Permanent resident	1,722	100.0	656	38.1	277	16.1	36	2.1	313	18.2	85	4.9	266	15.4	89	5.2
U.S. citizen	16,749	100.0	4,197	25.1	3,606	21.5	527	3.1	2,431	14.5	664	4.0	4,589	27.4	735	4.4
Sex																
Male	9,668	100.0	2,879	29.8	1,974	20.4	238	2.5	1,482	15.3	465	4.8	2,211	22.9	419	4.3
Female	7,081	100.0	1,318	18.6	1,632	23.0	289	4.1	949	13.4	199	2.8	2,378	33.6	316	4.5
Race/ethnicity																
Underrepresented minority ^e																
Asian/Pacific Islander	1,047	100.0	327	31.2	279	26.6	49	4.7	128	12.2	43	4.1	170	16.2	51	4.9
White	13,951	100.0	3,614	25.9	2,742	19.7	447	3.2	2,128	15.3	553	4.0	3,946	28.3	521	3.7
Unknown	284	100.0	60	21.1	57	20.1	1	0.4	42	14.8	14	4.9	66	23.2	44	15.5
Unknown citizenship	1,364	100.0	19	1.4	8	0.6	0	0.0	13	1.0	2	0.1	4	0.3	1,318	96.6

^aIncludes fellowships, scholarships, and dissertation grants.^bIncludes traineeship, internship, or residency.^cIncludes employer reimbursement/assistance, foreign support, and other sources.^dIncludes personal savings, other personal earnings in graduate school, other family earning or saving, and loans.^eUnderrepresented minorities include American Indians/Alaskan Natives, blacks, and Hispanics.

NOTES: U.S. citizen includes naturalized citizens. Science and engineering includes the health fields (medical and other life sciences). These data are not comparable to data for earlier years because of a change in the number and definition of support modes used in the survey questionnaire in 1998.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Earned Doctorates, 1999, unpublished tabulations.

Science & Engineering Indicators – 2002

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1990					1991					1992				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent
All fields															
East/South Asia	6,688	4,824	72.1	3,255	48.7	6,181	3,555	57.5	2,249	36.4	6,852	4,309	62.9	2,496	36.4
China	2,615	2,328	89.0	1,567	59.9	1,939	1,529	78.9	924	47.7	2,265	2,000	88.3	1,090	48.1
Taiwan	1,137	642	56.5	384	33.8	1,321	635	48.1	367	27.8	1,431	702	49.1	364	25.4
Japan	208	96	46.2	60	28.8	164	66	40.2	45	27.4	172	74	43.0	46	26.7
South Korea	1,042	483	46.4	285	27.4	1,396	454	32.5	285	20.4	1,474	464	31.5	272	18.5
India	1,285	1,096	85.3	842	65.5	924	689	74.6	518	56.1	1,072	880	82.1	609	56.8
Other	401	179	44.6	117	29.2	437	182	41.6	110	25.2	438	189	43.2	115	26.3
West Asia	818	456	55.7	291	35.6	1,101	505	45.9	258	23.4	1,237	647	52.3	316	25.5
Iran	100	76	76.0	46	46.0	256	174	68.0	81	31.6	232	171	73.7	73	31.5
Israel	81	41	50.6	25	30.9	120	53	44.2	34	28.3	120	62	51.7	37	30.8
Turkey	185	105	56.8	76	41.1	107	47	43.9	29	27.1	143	72	50.3	39	27.3
Other	452	234	51.8	144	31.9	618	231	37.4	114	18.4	742	342	46.1	167	22.5
Pacifica/Australasia	269	137	50.9	93	34.6	338	134	39.6	88	26.0	318	138	43.4	91	28.6
Australia	79	47	59.5	31	39.2	80	34	42.5	25	31.3	80	41	51.3	28	35.0
Indonesia	78	25	32.1	16	20.5	106	16	15.1	12	11.3	102	18	17.6	12	11.8
New Zealand	37	22	59.5	14	37.8	35	16	45.7	13	37.1	24	10	41.7	8	33.3
Other	75	43	57.3	32	42.7	117	68	58.1	38	32.5	112	69	61.6	43	38.4
Africa	463	262	56.6	129	27.9	698	275	39.4	126	18.1	717	332	46.3	164	22.9
Egypt	95	47	49.5	26	27.4	136	37	27.2	17	12.5	126	44	34.9	19	15.1
Nigeria	57	46	80.7	16	28.1	133	78	58.6	32	24.1	128	90	70.3	40	31.3
South Africa	42	20	47.6	11	26.2	51	18	35.3	14	27.5	63	27	42.9	18	28.6
Other	269	149	55.4	76	28.3	378	142	37.6	63	16.7	400	171	42.8	87	21.8
Europe	1,097	540	49.2	411	37.5	1,329	740	55.7	534	40.2	1,335	812	60.8	545	40.8
Greece	137	67	48.9	50	36.5	185	96	51.9	66	35.7	168	94	56.0	58	34.5
United Kingdom	172	119	69.2	90	52.3	207	142	68.6	101	48.8	216	161	74.5	117	54.2
Germany	169	85	50.3	65	38.5	181	109	60.2	80	44.2	189	116	61.4	72	38.1
Italy	88	35	39.8	24	27.3	115	56	48.7	44	38.3	99	51	51.5	29	29.3
France	94	41	43.6	30	31.9	107	55	51.4	40	37.4	116	63	54.3	42	36.2
Spain	73	27	37.0	24	32.9	103	52	50.5	39	37.9	91	57	62.6	41	45.1
Other	364	166	45.6	128	35.2	431	230	53.4	164	38.1	456	270	59.2	186	40.8
North/South America	1,099	434	39.5	329	29.9	1,293	599	46.3	434	33.6	1,302	615	47.2	393	30.2
Canada	419	191	45.6	153	36.5	511	241	47.2	187	36.6	509	260	51.1	191	37.5
Mexico	130	47	36.2	32	24.6	156	71	45.5	51	32.7	149	49	32.9	27	18.1
Argentina	78	32	41.0	24	30.8	73	46	63.0	33	45.2	101	47	46.5	28	27.7
Brazil	129	22	17.1	18	14.0	149	49	32.9	33	22.1	163	46	28.2	22	13.5
Chile	56	23	41.1	15	26.8	70	25	35.7	20	28.6	65	35	53.8	25	38.5
Colombia	46	24	52.2	18	39.1	64	33	51.6	19	29.7	54	29	53.7	14	25.9
Peru	28	14	50.0	12	42.9	40	27	67.5	16	40.0	42	27	64.3	19	45.2
Other	213	81	38.0	57	26.8	230	107	46.5	75	32.6	219	122	55.7	67	30.6

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1990					1991					1992				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent
S&E fields															
East/South Asia	4,305	2,074	48.2	1,497	34.8	5,224	3,155	60.4	1,980	37.9	5,717	3,732	65.3	2,144	37.5
China	1,166	692	59.3	482	41.3	1,809	1,434	79.3	865	47.8	2,068	1,825	88.2	997	48.2
Taiwan	1,012	451	44.6	299	29.5	1,123	581	51.7	340	30.3	1,240	640	51.6	329	26.5
Japan	147	60	40.8	48	32.7	125	50	40.0	35	28.0	132	51	38.6	28	21.2
South Korea	971	307	31.6	226	23.3	1,107	390	35.2	243	22.0	1,123	373	33.2	220	19.6
India	709	467	65.9	371	52.3	752	554	73.7	408	54.3	860	703	81.7	485	56.4
Other	300	97	32.3	71	23.7	308	146	47.4	89	28.9	294	140	47.6	85	28.9
West Asia	938	407	43.4	257	27.4	911	439	48.2	225	24.7	1,019	554	54.4	267	26.2
Iran	258	139	53.9	80	31.0	227	154	67.8	72	31.7	199	147	73.9	64	32.2
Israel	79	33	41.8	27	34.2	89	41	46.1	26	29.2	87	46	52.9	28	32.2
Turkey	106	66	62.3	43	40.6	100	42	42.0	26	26.0	132	66	50.0	36	27.3
Other	495	169	34.1	107	21.6	495	202	40.8	101	20.4	601	295	49.1	139	23.1
Pacifica/Australasia	173	64	37.0	45	26.0	213	94	44.1	62	29.1	220	100	45.5	68	30.9
Australia	45	21	46.7	15	33.3	35	16	45.7	12	34.3	40	22	55.0	16	40.0
Indonesia	53	12	22.6	9	17.0	66	13	19.7	11	16.7	78	16	20.5	11	14.1
New Zealand	16	7	43.8	6	37.5	23	11	47.8	8	34.8	16	6	37.5	5	31.3
Other	59	24	40.7	15	25.4	89	54	60.7	31	34.8	86	56	65.1	36	41.9
Africa	536	161	30.0	95	17.7	500	200	40.0	88	17.6	507	229	45.2	110	21.7
Egypt	159	28	17.6	14	8.8	112	30	26.8	13	11.6	101	32	31.7	16	15.8
Nigeria	82	41	50.0	24	29.3	83	49	59.0	21	25.3	67	53	79.1	23	34.3
South Africa	31	14	45.2	9	29.0	30	12	40.0	9	30.0	39	16	41.0	12	30.8
Other	264	78	29.5	48	18.2	275	109	39.6	45	16.4	300	128	42.7	59	19.7
Europe	802	383	47.8	288	35.9	971	524	54.0	385	39.6	950	550	57.9	377	39.7
Greece	125	65	52.0	48	38.4	168	90	53.6	62	36.9	149	82	55.0	49	32.9
United Kingdom	104	73	70.2	53	51.0	134	91	67.9	66	49.3	139	101	72.7	75	54.0
Germany	123	59	48.0	46	37.4	118	67	56.8	51	43.2	124	67	54.0	44	35.5
Italy	63	23	36.5	15	23.8	86	37	43.0	30	34.9	73	37	50.7	25	34.2
France	65	25	38.5	16	24.6	67	28	41.8	21	31.3	77	31	40.3	20	26.0
Spain	40	11	27.5	11	27.5	59	26	44.1	19	32.2	45	27	60.0	20	44.4
Other	282	127	45.0	99	35.1	339	185	54.6	136	40.1	343	205	59.8	144	42.0
North/South America	786	312	39.7	236	30.0	909	438	48.2	328	36.1	909	435	47.9	277	30.5
Canada	252	121	48.0	99	39.3	296	162	54.7	127	42.9	304	171	56.3	132	43.4
Mexico	104	34	32.7	21	20.2	128	58	45.3	45	35.2	115	39	33.9	22	19.1
Argentina	65	28	43.1	22	33.8	62	39	62.9	29	46.8	86	39	45.3	22	25.6
Brazil	98	17	17.3	13	13.3	118	35	29.7	25	21.2	133	37	27.8	18	13.5
Chile	50	18	36.0	12	24.0	54	21	38.9	17	31.5	48	25	52.1	18	37.5
Colombia	40	21	52.5	16	40.0	49	24	49.0	13	26.5	37	20	54.1	9	24.3
Peru	22	10	45.5	8	36.4	35	23	65.7	15	42.9	31	22	71.0	15	48.4
Other	155	63	40.6	45	29.0	167	76	45.5	57	34.1	155	82	52.9	41	26.5

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1990				1991				1992				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent
Natural sciences													
East/South Asia	2,173	1,162	53.5	885	40.7	2,589	1,765	68.2	1,182	45.7	2,923	2,174	74.4
China	770	475	61.7	358	46.5	1,238	1,003	81.0	656	53.0	1,438	1,282	89.2
Taiwan	458	221	48.3	153	33.4	421	247	58.7	152	36.1	504	291	57.7
Japan	58	31	53.4	25	43.1	46	25	54.3	17	37.0	50	26	52.0
South Korea	407	168	41.3	134	32.9	422	187	44.3	132	31.3	418	192	45.9
India	319	220	69.0	180	56.4	304	225	74.0	174	57.2	365	307	84.1
Other	161	47	29.2	35	21.7	158	78	49.4	51	32.3	148	76	51.4
West Asia	350	141	40.3	93	26.6	328	171	52.1	100	30.5	378	213	56.3
Iran	84	48	57.1	31	36.9	83	58	69.9	33	39.8	59	45	76.3
Israel	35	15	42.9	13	37.1	33	22	66.7	16	48.5	32	18	56.3
Turkey	28	16	57.1	9	32.1	24	9	37.5	6	25.0	35	22	62.9
Other	203	62	30.5	40	19.7	188	82	43.6	45	23.9	252	128	50.8
Pacifica/Australasia	94	34	36.2	23	24.5	100	54	54.0	39	39.0	120	63	52.5
Australia	19	8	42.1	5	26.3	15	9	60.0	7	46.7	16	8	50.0
Indonesia	23	5	21.7	3	13.0	23	4	17.4	4	17.4	35	6	17.1
New Zealand	10	5	50.0	5	50.0	11	4	36.4	3	27.3	7	3	42.9
Other	42	16	38.1	10	23.8	51	37	72.5	25	49.0	62	46	74.2
Africa	218	62	28.4	33	15.1	218	85	39.0	36	16.5	247	107	43.3
Egypt	62	11	17.7	5	8.1	42	12	28.6	5	11.9	44	16	36.4
Nigeria	26	13	50.0	6	23.1	31	20	64.5	9	29.0	22	20	90.9
South Africa	6	1	16.7	0	0.0	10	5	50.0	5	50.0	19	8	42.1
Other Africa	124	37	29.8	22	17.7	135	48	35.6	17	12.6	162	63	38.9
Europe	422	203	48.1	159	37.7	542	301	55.5	227	41.9	510	294	57.6
Greece	50	27	54.0	22	44.0	69	42	60.9	32	46.4	66	36	54.5
United Kingdom	54	40	74.1	31	57.4	75	54	72.0	45	60.0	70	48	68.6
Germany	76	35	46.1	25	32.9	82	45	54.9	37	45.1	78	42	53.8
Italy	34	11	32.4	9	26.5	45	23	51.1	17	37.8	43	19	44.2
France	27	9	33.3	5	18.5	37	16	43.2	9	24.3	40	16	40.0
Spain	18	4	22.2	4	22.2	37	15	40.5	9	24.3	16	12	75.0
Other	163	77	47.2	63	38.7	197	106	53.8	78	39.6	197	121	61.4
North/South America	419	157	37.5	118	28.2	514	245	47.7	189	36.8	503	232	46.1
Canada	130	61	46.9	49	37.7	154	93	60.4	76	49.4	163	91	55.8
Mexico	65	19	29.2	12	18.5	80	35	43.8	26	32.5	69	25	36.2
Argentina	42	17	40.5	13	31.0	34	21	61.8	18	52.9	45	18	40.0
Brazil	44	10	22.7	8	18.2	66	14	21.2	11	16.7	79	19	24.1
Chile	22	9	40.9	6	27.3	33	16	48.5	12	36.4	24	18	75.0
Colombia	27	12	44.4	10	37.0	26	10	38.5	6	23.1	22	10	45.5
Peru	11	4	36.4	4	36.4	18	9	50.0	6	33.3	12	8	66.7
Other	78	25	32.1	16	20.5	103	47	45.6	34	33.0	89	43	48.3

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1990				1991				1992				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent
Social and behavioral sciences													
East/South Asia	552	166	30.1	117	21.2	649	254	39.1	156	24.0	688	269	39.1
China	63	36	57.1	24	38.1	88	63	71.6	31	35.2	114	95	83.3
Taiwan	78	22	28.2	12	15.4	105	40	38.1	25	23.8	99	29	29.3
Japan	72	24	33.3	19	26.4	50	18	36.0	12	24.0	57	19	33.3
South Korea	204	36	17.6	26	12.7	251	55	21.9	33	13.1	268	50	18.7
India	76	36	47.4	29	38.2	91	57	62.6	43	47.3	90	61	67.8
Other	59	12	20.3	7	11.9	64	21	32.8	12	18.8	60	15	25.0
West Asia	162	57	35.2	42	25.9	172	58	33.7	26	15.1	183	79	43.2
Iran	35	16	45.7	9	25.7	21	16	76.2	5	23.8	30	19	63.3
Israel	22	8	36.4	7	31.8	29	12	41.4	8	27.6	29	15	51.7
Turkey	19	12	63.2	10	52.6	12	5	41.7	3	25.0	16	6	37.5
Other	86	21	24.4	16	18.6	110	25	22.7	10	9.1	108	39	36.1
Pacifica/Australasia	54	15	27.8	11	20.4	68	19	27.9	11	16.2	52	15	28.8
Australia	23	11	47.8	8	34.8	13	4	30.8	2	15.4	13	5	38.5
Indonesia	16	0	0.0	0	0.0	24	1	4.2	1	4.2	19	3	15.8
New Zealand	4	0	0.0	0	0.0	10	6	60.0	4	40.0	8	2	25.0
Other	11	4	36.4	3	27.3	21	8	38.1	4	19.0	12	5	41.7
Africa	131	44	33.6	26	19.8	127	56	44.1	29	22.8	122	57	46.7
Egypt	15	1	6.7	0	0.0	13	4	30.8	2	15.4	11	1	9.1
Nigeria	33	16	48.5	10	30.3	32	15	46.9	6	18.8	34	23	67.6
South Africa	13	6	46.2	3	23.1	11	5	45.5	3	27.3	14	6	42.9
Other	70	21	30.0	13	18.6	71	32	45.1	18	25.4	63	27	42.9
Europe	175	88	50.3	65	37.1	229	126	55.0	97	42.4	238	149	62.6
Greece	18	10	55.6	6	33.3	29	12	41.4	8	27.6	24	15	62.5
United Kingdom	35	23	65.7	15	42.9	44	27	61.4	15	34.1	52	39	75.0
Germany	32	19	59.4	17	53.1	28	18	64.3	14	50.0	28	15	53.6
Italy	15	6	40.0	3	20.0	29	12	41.4	11	37.9	20	14	70.0
France	11	4	36.4	3	27.3	11	6	54.5	6	54.5	12	5	41.7
Spain	14	6	42.9	6	42.9	18	10	55.6	9	50.0	23	12	52.2
Other	50	20	40.0	15	30.0	70	41	58.6	34	48.6	79	49	62.0
North/South America	199	80	40.2	62	31.2	225	97	43.1	72	32.0	246	119	48.4
Canada	81	38	46.9	34	42.0	88	37	42.0	27	30.7	95	53	55.8
Mexico	14	5	35.7	2	14.3	26	13	50.0	10	38.5	30	9	30.0
Argentina	11	5	45.5	5	45.5	16	9	56.3	5	31.3	27	12	44.4
Brazil	23	2	8.7	1	4.3	18	6	33.3	5	27.8	23	9	39.1
Chile	17	5	29.4	3	17.6	13	3	23.1	3	23.1	14	5	35.7
Colombia	5	4	80.0	2	40.0	12	6	50.0	4	33.3	6	4	66.7
Peru	5	3	60.0	1	20.0	10	7	70.0	5	50.0	14	9	64.3
Other	43	18	41.9	14	32.6	42	16	38.1	13	31.0	37	18	48.6

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1990					1991					1992				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent
Engineering															
East/South Asia	1,580	746	47.2	495	31.3	1,986	1,136	57.2	642	32.3	2,106	1,289	61.2	644	30.6
China	333	181	54.4	100	30.0	483	368	76.2	178	36.9	516	448	86.8	185	35.9
Taiwan	476	208	43.7	134	28.2	597	294	49.2	163	27.3	637	320	50.2	143	22.4
Japan	17	5	29.4	4	23.5	29	7	24.1	6	20.7	25	6	24.0	3	12.0
South Korea	360	103	28.6	66	18.3	434	148	34.1	78	18.0	437	131	30.0	65	14.9
India	314	211	67.2	162	51.6	357	272	76.2	191	53.5	405	335	82.7	222	54.8
Other	80	38	47.5	29	36.3	86	47	54.7	26	30.2	86	49	57.0	26	30.2
West Asia	426	209	49.1	122	28.6	411	210	51.1	99	24.1	458	262	57.2	117	25.5
Iran	139	75	54.0	40	28.8	123	80	65.0	34	27.6	110	83	75.5	37	33.6
Israel	22	10	45.5	7	31.8	27	7	25.9	2	7.4	26	13	50.0	5	19.2
Turkey	59	38	64.4	24	40.7	64	28	43.8	17	26.6	81	38	46.9	20	24.7
Other	206	86	41.7	51	24.8	197	95	48.2	46	23.4	241	128	53.1	55	22.8
Pacifica/Australasia	25	15	60.0	11	44.0	45	21	46.7	12	26.7	48	22	45.8	16	33.3
Australia	3	2	66.7	2	66.7	7	3	42.9	3	42.9	11	9	81.8	6	54.5
Indonesia	14	7	50.0	6	42.9	19	8	42.1	6	31.6	24	7	29.2	6	25.0
New Zealand	2	2	100.0	1	50.0	2	1	50.0	1	50.0	1	1	100.0	1	100.0
Other	6	4	66.7	2	33.3	17	9	52.9	2	11.8	12	5	41.7	3	25.0
Africa	187	55	29.4	36	19.3	155	59	38.1	23	14.8	138	65	47.1	37	26.8
Egypt	82	16	19.5	9	11.0	57	14	24.6	6	10.5	46	15	32.6	8	17.4
Nigeria	23	12	52.2	8	34.8	20	14	70.0	6	30.0	11	10	90.9	5	45.5
South Africa	12	7	58.3	6	50.0	9	2	22.2	1	11.1	6	2	33.3	2	33.3
Other Africa	70	20	28.6	13	18.6	69	29	42.0	10	14.5	75	38	50.7	22	29.3
Europe	205	92	44.9	64	31.2	200	97	48.5	61	30.5	202	107	53.0	68	33.7
Greece	57	28	49.1	20	35.1	70	36	51.4	22	31.4	59	31	52.5	17	28.8
United Kingdom	15	10	66.7	7	46.7	15	10	66.7	6	40.0	17	14	82.4	11	64.7
Germany	15	5	33.3	4	26.7	8	4	50.0	0	0.0	18	10	55.6	7	38.9
Italy	14	6	42.9	3	21.4	12	2	16.7	2	16.7	10	4	40.0	2	20.0
France	27	12	44.4	8	29.6	19	6	31.6	6	31.6	25	10	40.0	4	16.0
Spain	8	1	12.5	1	12.5	4	1	25.0	1	25.0	6	3	50.0	2	33.3
Other	69	30	43.5	21	30.4	72	38	52.8	24	33.3	67	35	52.2	25	37.3
North/South America	168	75	44.6	56	33.3	170	96	56.5	67	39.4	160	84	52.5	55	34.4
Canada	41	22	53.7	16	39.0	54	32	59.3	24	44.4	46	27	58.7	20	43.5
Mexico	25	10	40.0	7	28.0	22	10	45.5	9	40.9	16	5	31.3	4	25.0
Argentina	12	6	50.0	4	33.3	12	9	75.0	6	50.0	14	9	64.3	5	35.7
Brazil	31	5	16.1	4	12.9	34	15	44.1	9	26.5	31	9	29.0	4	12.9
Chile	11	4	36.4	3	27.3	8	2	25.0	2	25.0	10	2	20.0	2	20.0
Colombia	8	5	62.5	4	50.0	11	8	72.7	3	27.3	9	6	66.7	4	44.4
Peru	6	3	50.0	3	50.0	7	7	100.0	4	57.1	5	5	100.0	3	60.0
Other	34	20	58.8	15	44.1	22	13	59.1	10	45.5	29	21	72.4	13	44.8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1993					1994					1995				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent
All fields															
East/South Asia	7,063	4,345	61.5	2,340	33.1	7,833	5,052	64.5	2,625	33.5	7,922	5,341	67.4	2,791	35.2
China	2,430	2,143	88.2	1,080	44.4	2,788	2,560	91.8	1,227	44.0	2,992	2,748	91.8	1,343	44.9
Taiwan	1,456	584	40.1	304	20.9	1,576	654	41.5	322	20.4	1,485	669	45.1	293	19.7
Japan	182	66	36.3	43	23.6	235	95	40.4	57	24.3	233	102	43.8	69	29.6
South Korea	1,409	462	32.8	236	16.7	1,475	522	35.4	267	18.1	1,306	466	35.7	244	18.7
India	1,139	920	80.8	577	50.7	1,289	1,049	81.4	662	51.4	1,425	1,179	82.7	746	52.4
Other	447	170	38.0	100	22.4	470	172	36.6	90	19.1	481	177	36.8	96	20.0
West Asia	1,188	593	49.9	265	22.3	1,200	580	48.3	269	22.4	1,171	628	53.6	312	26.6
Iran	239	171	71.5	67	28.0	193	129	66.8	42	21.8	196	155	79.1	65	33.2
Israel	126	65	51.6	37	29.4	143	71	49.7	42	29.4	114	55	48.2	36	31.6
Turkey	158	67	42.4	34	21.5	163	55	33.7	32	19.6	188	104	55.3	59	31.4
Other	665	290	43.6	127	19.1	701	325	46.4	153	21.8	673	314	46.7	152	22.6
Pacifica/Australasia	330	141	42.7	88	26.7	317	157	49.5	92	29.0	303	122	40.3	71	23.4
Australia	91	45	49.5	33	36.3	98	55	56.1	40	40.8	90	43	47.8	31	34.4
Indonesia	109	22	20.2	13	11.9	98	22	22.4	12	12.2	107	18	16.8	6	5.6
New Zealand	32	11	34.4	8	25.0	29	15	51.7	12	41.4	34	19	55.9	13	38.2
Other	98	63	64.3	34	34.7	92	65	70.7	28	30.4	72	42	58.3	21	29.2
Africa	678	328	48.4	131	19.3	784	384	49.0	136	17.3	622	329	52.9	109	17.5
Egypt	107	47	43.9	21	19.6	124	56	45.2	24	19.4	91	36	39.6	10	11.0
Nigeria	117	81	69.2	18	15.4	114	95	83.3	30	26.3	99	84	84.8	23	23.2
South Africa	58	26	44.8	18	31.0	56	26	46.4	17	30.4	60	23	38.3	12	20.0
Other	396	174	43.9	74	18.7	490	207	42.2	65	13.3	372	186	50.0	64	17.2
Europe	1,485	861	58.0	564	38.0	1,565	938	59.9	620	39.6	1,702	1,071	62.9	684	40.2
Greece	199	116	58.3	78	39.2	188	85	45.2	60	31.9	197	111	56.3	60	30.5
United Kingdom	230	169	73.5	120	52.2	219	156	71.2	97	44.3	222	167	75.2	116	52.3
Germany	250	148	59.2	91	36.4	257	167	65.0	113	44.0	306	194	63.4	120	39.2
Italy	101	43	42.6	31	30.7	108	57	52.8	30	27.8	116	60	51.7	33	28.4
France	136	62	45.6	40	29.4	132	77	58.3	45	34.1	117	65	55.6	36	30.8
Spain	100	54	54.0	34	34.0	113	59	52.2	43	38.1	102	64	62.7	50	49.0
Other	469	269	57.4	170	36.2	548	337	61.5	232	42.3	642	410	63.9	269	41.9
North/South America	1,279	589	46.1	382	29.9	1,368	641	46.9	405	29.6	1,326	620	46.8	384	29.0
Canada	486	239	49.2	176	36.2	490	239	48.8	174	35.5	524	278	53.1	171	32.6
Mexico	162	66	40.7	35	21.6	178	67	37.6	37	20.8	162	57	35.2	34	21.0
Argentina	68	37	54.4	25	36.8	68	45	66.2	33	48.5	77	38	49.4	26	33.8
Brazil	181	44	24.3	26	14.4	202	60	29.7	33	16.3	175	48	27.4	32	18.3
Chile	64	30	46.9	17	26.6	54	19	35.2	14	25.9	50	20	40.0	11	22.0
Colombia	47	21	44.7	17	36.2	59	35	59.3	14	23.7	56	24	42.9	15	26.8
Peru	48	27	56.3	17	35.4	42	30	71.4	16	38.1	39	23	59.0	14	35.9
Other	223	125	56.1	69	30.9	275	146	53.1	84	30.5	243	132	54.3	81	33.3

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1993						1994						1995					
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent
S&E fields																		
East/South Asia	5,935	3,836	64.6	2,057	34.7	6,532	4,458	68.2	2,328	35.6	6,688	4,756	71.1	2,485	37.2			
China	2,240	1,984	88.6	1,011	45.1	2,540	2,351	92.6	1,143	45.0	2,763	2,548	92.2	1,247	45.1			
Taiwan	1,213	530	43.7	282	23.2	1,297	593	45.7	296	22.8	1,240	615	49.6	275	22.2			
Japan	132	43	32.6	27	20.5	182	79	43.4	51	28.0	155	63	40.6	48	31.0			
South Korea	1,118	394	35.2	201	18.0	1,143	436	38.1	230	20.1	1,000	388	38.8	210	21.0			
India	932	759	81.4	462	49.6	1,065	871	81.8	536	50.3	1,206	1,003	83.2	632	52.4			
Other	300	126	42.0	74	24.7	305	128	42.0	72	23.6	324	139	42.9	73	22.5			
West Asia	966	504	52.2	220	22.8	1,004	501	49.9	235	23.4	966	549	56.8	272	28.2			
Iran	203	142	70.0	55	27.1	173	114	65.9	37	21.4	173	138	79.8	58	33.5			
Israel	89	48	53.9	28	31.5	106	60	56.6	38	35.8	80	38	47.5	23	28.8			
Turkey	136	60	44.1	29	21.3	144	48	33.3	27	18.8	166	96	57.8	57	34.3			
Other	538	254	47.2	108	20.1	581	279	48.0	133	22.9	547	277	50.6	134	24.5			
Pacifica/Australasia	227	111	48.9	70	30.8	230	117	50.9	69	30.0	231	97	42.0	53	22.9			
Australia	47	32	68.1	23	48.9	56	33	58.9	26	46.4	61	29	47.5	19	31.1			
Indonesia	78	18	23.1	12	15.4	83	20	24.1	12	14.5	83	18	21.7	6	7.2			
New Zealand	24	8	33.3	6	25.0	15	9	60.0	7	46.7	26	15	57.7	11	42.3			
Other	78	53	67.9	29	37.2	76	55	72.4	24	31.6	61	35	57.4	17	27.9			
Africa	470	224	47.7	89	18.9	581	271	46.6	96	16.5	422	225	53.3	76	18.0			
Egypt	88	38	43.2	16	18.2	104	47	45.2	20	19.2	78	32	41.0	9	11.5			
Nigeria	54	40	74.1	9	16.7	60	51	85.0	15	25.0	52	48	92.3	12	23.1			
South Africa	36	14	38.9	8	22.2	42	21	50.0	13	31.0	28	12	42.9	9	32.1			
Other	292	132	45.2	56	19.2	375	152	40.5	48	12.8	264	133	50.4	46	17.4			
Europe	1,103	611	55.4	415	37.6	1,148	668	58.2	466	40.6	1,253	776	61.9	513	40.9			
Greece	174	101	58.0	68	39.1	166	75	45.2	54	32.5	174	98	56.3	57	32.8			
United Kingdom	157	113	72.0	86	54.8	131	90	68.7	59	45.0	134	102	76.1	77	57.5			
Germany	164	86	52.4	55	33.5	196	124	63.3	93	47.4	208	124	59.6	83	39.9			
Italy	76	30	39.5	23	30.3	83	42	50.6	21	25.3	81	37	45.7	22	27.2			
France	93	29	31.2	17	18.3	96	51	53.1	30	31.3	83	38	45.8	23	27.7			
Spain	63	27	42.9	21	33.3	58	23	39.7	20	34.5	51	29	56.9	24	47.1			
Other	376	225	59.8	145	38.6	418	263	62.9	189	45.2	522	348	66.7	227	43.5			
North/South America	900	415	46.1	282	31.3	955	462	48.4	302	31.6	862	417	48.4	276	32.0			
Canada	285	164	57.5	131	46.0	275	160	58.2	123	44.7	273	173	63.4	119	43.6			
Mexico	139	54	38.8	30	21.6	142	49	34.5	29	20.4	128	45	35.2	26	20.3			
Argentina	53	26	49.1	17	32.1	56	37	66.1	28	50.0	49	22	44.9	17	34.7			
Brazil	151	34	22.5	19	12.6	157	45	28.7	26	16.6	137	39	28.5	28	20.4			
Chile	52	24	46.2	15	28.6	42	14	33.3	11	26.2	38	14	36.8	7	18.4			
Colombia	35	11	31.4	10	28.6	48	28	58.3	9	18.8	45	15	33.3	10	22.2			
Peru	34	21	61.8	12	35.3	32	20	62.5	12	37.5	26	16	61.5	10	38.5			
Other	151	81	53.6	48	31.8	203	109	53.7	64	31.5	166	93	56.0	59	35.5			

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1993						1994						1995					
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent
Natural sciences																		
East/South Asia	3,006	2,215	73.7	1,297	43.1	3,342	2,560	76.6	1,466	43.9	3,427	2,702	78.8	1,517	44.3			
China	1,516	1,354	89.3	753	49.7	1,671	1,558	93.2	836	50.0	1,807	1,672	92.5	883	48.9			
Taiwan	514	270	52.5	164	31.9	509	266	52.3	154	30.3	502	290	57.8	140	27.9			
Japan	48	17	35.4	15	31.3	59	34	57.6	23	39.0	51	25	49.0	19	37.3			
South Korea	402	195	48.5	125	31.1	473	242	51.2	152	32.1	414	220	53.1	147	35.5			
India	382	315	82.5	200	52.4	474	389	82.1	251	53.0	499	417	83.6	281	56.3			
Other	144	64	44.4	40	27.8	156	71	45.5	50	32.1	154	78	50.6	47	30.5			
West Asia	369	206	55.8	100	27.1	395	205	51.9	112	28.4	411	227	55.2	124	30.2			
Iran	82	59	72.0	24	29.3	60	39	65.0	16	26.7	73	58	79.5	24	32.9			
Israel	43	26	60.5	16	37.2	52	36	69.2	25	48.1	36	19	52.8	15	41.7			
Turkey	33	15	45.5	8	24.2	63	23	36.5	15	23.8	64	40	62.5	24	37.5			
Other	211	106	50.2	52	24.6	220	107	48.6	56	25.5	238	110	46.2	61	25.6			
Pacifica/Australasia	122	60	49.2	38	31.1	123	75	61.0	45	36.6	107	52	48.6	31	29.0			
Australia	24	15	62.5	10	41.7	31	20	64.5	16	51.6	33	17	51.5	11	33.3			
Indonesia	34	4	11.8	3	8.8	33	9	27.3	6	18.2	25	6	24.0	3	12.0			
New Zealand	17	6	35.3	5	29.4	9	6	66.7	5	55.6	13	6	46.2	5	38.5			
Other	47	35	74.5	20	42.6	50	40	80.0	18	36.0	36	23	63.9	12	33.3			
Africa	224	106	47.3	47	21.0	267	119	44.6	51	19.1	187	106	56.7	36	19.3			
Egypt	30	16	53.3	7	23.3	32	13	40.6	5	15.6	21	12	57.1	2	9.5			
Nigeria	18	13	72.2	3	16.7	27	26	96.3	11	40.7	16	16	100.0	5	31.3			
South Africa	18	8	44.4	5	27.8	20	13	65.0	9	45.0	11	7	63.6	5	45.5			
Other Africa	158	69	43.7	32	20.3	188	67	35.6	26	13.8	139	71	51.1	24	17.3			
Europe	612	343	56.0	241	39.4	661	392	59.3	288	43.6	707	425	60.1	299	42.3			
Greece	77	46	59.7	30	39.0	84	36	42.9	26	31.0	87	43	49.4	30	34.5			
United Kingdom	95	69	72.6	55	57.9	74	51	68.9	37	50.0	68	51	75.0	39	57.4			
Germany	100	49	49.0	32	32.0	115	69	60.0	53	46.1	129	72	55.8	51	39.5			
Italy	44	16	36.4	13	29.5	41	18	43.9	9	22.0	49	20	40.8	13	26.5			
France	49	15	30.6	11	22.4	53	28	52.8	19	35.8	47	21	44.7	16	34.0			
Spain	30	20	66.7	15	50.0	35	15	42.9	13	37.1	33	19	57.6	16	48.5			
Other	217	128	59.0	85	39.2	259	175	67.6	131	50.6	294	199	67.7	134	45.6			
North/South America	470	225	47.9	165	35.1	515	265	51.5	184	35.7	483	246	50.9	166	34.4			
Canada	140	87	62.1	73	52.1	153	99	64.7	75	49.0	130	91	70.0	65	50.0			
Mexico	84	31	36.9	19	22.6	84	30	35.7	21	25.0	86	31	36.0	17	19.8			
Argentina	31	16	51.6	13	41.9	35	21	60.0	16	45.7	29	11	37.9	7	24.1			
Brazil	75	16	21.3	10	13.3	82	26	31.7	15	18.3	77	27	35.1	22	28.6			
Chile	34	17	50.0	12	35.3	23	9	39.1	7	30.4	23	12	52.2	6	26.1			
Colombia	21	6	28.6	5	23.8	28	15	53.6	6	21.4	21	10	47.6	6	28.6			
Peru	12	8	66.7	7	58.3	10	7	70.0	5	50.0	12	8	66.7	6	50.0			
Other	73	44	60.3	26	35.6	100	58	58.0	39	39.0	105	56	53.3	37	35.2			

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Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1993					1994					1995				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent
Social and behavioral sciences															
East/South Asia	748	318	42.5	162	21.7	823	397	48.2	198	24.1	820	376	45.9	190	23.2
China	179	141	78.8	61	34.1	212	189	89.2	81	38.2	177	150	84.7	69	39.0
Taiwan	107	25	23.4	13	12.1	118	21	17.8	9	7.6	122	30	24.6	9	7.4
Japan	61	20	32.8	11	18.0	77	33	42.9	22	28.6	74	32	43.2	25	33.8
South Korea	232	38	16.4	13	5.6	241	51	21.2	26	10.8	242	48	19.8	17	7.0
India	102	76	74.5	53	52.0	111	80	72.1	50	45.0	135	97	71.9	59	43.7
Other	67	18	26.9	11	16.4	64	23	35.9	10	15.6	70	19	27.1	11	15.7
West Asia	156	71	45.5	32	20.5	181	71	39.2	30	16.6	166	78	47.0	40	24.1
Iran	26	18	69.2	5	19.2	21	14	66.7	3	14.3	15	13	86.7	5	33.3
Israel	23	11	47.8	9	39.1	38	17	44.7	9	23.7	29	15	51.7	7	24.1
Turkey	29	16	55.2	7	24.1	17	5	29.4	2	11.8	29	11	37.9	9	31.0
Other	78	26	33.3	11	14.1	105	35	33.3	16	15.2	93	39	41.9	19	20.4
Pacifica/Australasia	62	30	48.4	19	30.6	57	19	33.3	12	21.1	80	26	32.5	12	15.0
Australia	17	13	76.5	10	58.8	14	7	50.0	7	50.0	21	7	33.3	4	19.0
Indonesia	15	2	13.3	1	6.7	22	2	9.1	1	4.5	29	3	10.3	1	3.4
New Zealand	7	2	28.6	1	14.3	5	2	40.0	2	40.0	10	7	70.0	4	40.0
Other	23	13	56.5	7	30.4	16	8	50.0	2	12.5	20	9	45.0	3	15.0
Africa	125	58	46.4	19	15.2	146	66	45.2	15	10.3	113	57	50.4	16	14.2
Egypt	10	3	30.0	1	10.0	9	3	33.3	2	22.2	9	4	44.4	1	11.1
Nigeria	24	19	79.2	4	16.7	27	20	74.1	2	7.4	22	19	86.4	3	13.6
South Africa	12	3	25.0	1	8.3	14	6	42.9	3	21.4	10	3	30.0	3	30.0
Other	79	33	41.8	13	16.5	96	37	38.5	8	8.3	72	31	43.1	9	12.5
Europe	247	124	50.2	85	34.4	230	127	55.2	84	36.5	249	150	60.2	103	41.4
Greece	29	18	62.1	11	37.9	24	8	33.3	5	20.8	26	13	50.0	7	26.9
United Kingdom	44	28	63.6	19	43.2	42	27	64.3	15	35.7	46	33	71.7	26	56.5
Germany	41	23	56.1	16	39.0	52	36	69.2	29	55.8	42	29	69.0	22	52.4
Italy	22	7	31.8	5	22.7	31	19	61.3	10	32.3	23	12	52.2	7	30.4
France	12	3	25.0	2	16.7	11	7	63.6	4	36.4	12	5	41.7	2	16.7
Spain	25	5	20.0	4	16.0	14	6	42.9	6	42.9	12	8	66.7	7	58.3
Other	74	40	54.1	28	37.8	56	24	42.9	15	26.8	88	50	56.8	32	36.4
North/South America	251	107	42.6	72	28.7	239	103	43.1	67	28.0	209	101	48.3	68	32.5
Canada	103	51	49.5	40	38.8	86	40	46.5	30	34.9	102	55	53.9	38	37.3
Mexico	28	9	32.1	5	17.9	28	8	28.6	4	14.3	16	5	31.3	3	18.8
Argentina	12	4	33.3	1	8.3	14	10	71.4	7	50.0	13	7	53.8	6	46.2
Brazil	30	10	33.3	6	20.0	26	8	30.8	6	23.1	14	6	42.9	3	21.4
Chile	13	3	23.1	2	15.4	11	2	18.2	1	9.1	7	0	0.0	0	0.0
Colombia	6	2	33.3	2	33.3	8	6	75.0	3	37.5	14	2	14.3	1	7.1
Peru	12	6	50.0	2	16.7	12	4	33.3	3	25.0	9	3	33.3	2	22.2
Other	47	22	46.8	14	29.8	54	25	46.3	13	24.1	34	23	67.6	15	44.1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1993						1994						1995					
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent
Engineering																		
East/South Asia	2,181	1,303	59.7	598	27.4	2,367	1,501	63.4	664	28.1	2,441	1,678	68.7	778	31.9			
China	545	489	89.7	197	36.1	657	604	91.9	226	34.4	779	726	93.2	295	37.9			
Taiwan	592	235	39.7	105	17.7	670	306	45.7	133	19.9	616	295	47.9	126	20.5			
Japan	23	6	26.1	1	4.3	46	12	26.1	6	13.0	30	6	20.0	4	13.3			
South Korea	484	161	33.3	63	13.0	429	143	33.3	52	12.1	344	120	34.9	46	13.4			
India	448	368	82.1	209	46.7	480	402	83.8	235	49.0	572	489	85.5	292	51.0			
Other	89	44	49.4	23	25.8	85	34	40.0	12	14.1	100	42	42.0	15	15.0			
West Asia	441	227	51.5	88	20.0	428	225	52.6	93	21.7	389	244	62.7	108	27.8			
Iran	95	65	68.4	26	27.4	92	61	66.3	18	19.6	85	67	78.8	29	34.1			
Israel	23	11	47.8	3	13.0	16	7	43.8	4	25.0	15	4	26.7	1	6.7			
Turkey	74	29	39.2	14	18.9	64	20	31.3	10	15.6	73	45	61.6	24	32.9			
Other	249	122	49.0	45	18.1	256	137	53.5	61	23.8	216	128	59.3	54	25.0			
Pacifica/Australasia	43	21	48.8	13	30.2	50	23	46.0	12	24.0	44	19	43.2	10	22.7			
Australia	6	4	66.7	3	50.0	11	6	54.5	3	27.3	7	5	71.4	4	57.1			
Indonesia	29	12	41.4	8	27.6	28	9	32.1	5	17.9	29	9	31.0	2	6.9			
New Zealand	8	5	62.5	2	25.0	1	1	100.0	0	0.0	3	2	66.7	2	66.7			
Other	121	60	49.6	23	19.0	10	7	70.0	4	40.0	5	3	60.0	2	40.0			
Africa	48	19	39.6	8	16.7	168	86	51.2	30	17.9	122	62	50.8	24	19.7			
Egypt	12	8	66.7	2	16.7	63	31	49.2	13	20.6	48	16	33.3	6	12.5			
Nigeria	6	3	50.0	2	33.3	6	5	83.3	2	33.3	14	13	92.9	4	28.6			
South Africa	55	30	54.5	11	20.0	8	2	25.0	1	12.5	7	2	28.6	1	14.3			
Other Africa	244	144	59.0	89	36.5	91	48	52.7	14	15.4	53	31	58.5	13	24.5			
Europe	244	144	59.0	89	36.5	257	149	58.0	94	36.6	297	201	67.7	111	37.4			
Greece	68	37	54.4	27	39.7	58	31	53.4	23	39.7	61	42	68.9	20	32.8			
United Kingdom	18	16	88.9	12	66.7	15	12	80.0	7	46.7	20	18	90.0	12	60.0			
Germany	23	14	60.9	7	30.4	29	19	65.5	11	37.9	37	23	62.2	10	27.0			
Italy	10	7	70.0	5	50.0	11	5	45.5	2	18.2	9	5	55.6	2	22.2			
France	32	11	34.4	4	12.5	32	16	50.0	7	21.9	24	12	50.0	5	20.8			
Spain	8	2	25.0	2	25.0	9	2	22.2	1	11.1	6	2	33.3	1	16.7			
Other	85	57	67.1	32	37.6	103	64	62.1	43	41.7	140	99	70.7	61	43.6			
North/South America	179	83	46.4	45	25.1	201	94	46.8	51	25.4	170	70	41.2	42	24.7			
Canada	42	26	61.9	18	42.9	36	21	58.3	18	50.0	41	27	65.9	16	39.0			
Mexico	27	14	51.9	6	22.2	30	11	36.7	4	13.3	26	9	34.6	6	23.1			
Argentina	10	6	60.0	3	30.0	7	6	85.7	5	71.4	7	4	57.1	4	57.1			
Brazil	46	8	17.4	3	6.5	49	11	22.4	5	10.2	46	6	13.0	3	6.5			
Chile	5	4	80.0	1	20.0	8	3	37.5	3	37.5	8	2	25.0	1	12.5			
Colombia	8	3	37.5	3	37.5	12	7	58.3	0	0.0	10	3	30.0	3	30.0			
Peru	10	7	70.0	3	30.0	10	9	90.0	4	40.0	5	5	100.0	2	40.0			
Other	31	15	48.4	8	25.8	49	26	53.1	12	24.5	27	14	51.9	7	25.9			

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1996					1997					1998					1999				
	Total recipients	Ph.D. Number	Plan to stay Percent	Firm plans to stay Number	Firm plans to stay Percent	Total recipients	Ph.D. Number	Plan to stay Percent	Firm plans to stay Number	Firm plans to stay Percent	Total recipients	Ph.D. Number	Plan to stay Percent	Firm plans to stay Number	Firm plans to stay Percent	Total recipients	Ph.D. Number	Plan to stay Percent	Firm plans to stay Number	Firm plans to stay Percent
	All fields																			
East/South Asia	8,107	5,544	68.4	3,464	42.7	6806	4,475	65.8	3,081	45.3	6,688	4,824	72.1	3,255	48.7	6,081	4,514	74.2	2,981	49.0
China	3,221	2,905	90.2	1,794	55.7	2,480	2,030	81.9	1,397	56.3	2,615	2,328	89.0	1,567	59.9	2,400	2,154	89.8	1,433	59.7
Taiwan	1,404	653	46.5	344	24.5	1,251	659	52.7	404	32.3	1,137	642	56.5	384	33.8	981	558	56.9	320	32.6
Japan	245	104	42.4	67	27.3	218	99	45.4	72	33.0	208	96	46.2	60	28.8	238	119	50.0	73	30.7
South Korea	1,260	441	35.0	270	21.4	1,110	405	36.5	275	24.8	1,042	483	46.4	285	27.4	1,017	568	55.9	351	34.5
India	1,500	1,264	84.3	882	58.8	1,427	1,152	80.7	847	59.4	1,285	1,096	85.3	842	65.5	1,077	957	88.9	698	64.8
Other	477	177	37.1	107	22.4	320	130	40.6	86	26.9	401	179	44.6	117	29.2	368	158	42.9	106	28.8
West Asia	1,067	569	53.3	319	29.9	854	416	48.7	276	32.3	818	456	55.7	291	35.6	883	511	57.9	326	36.9
Iran	161	130	80.7	64	39.8	119	77	64.7	54	45.4	100	76	76.0	46	46.0	103	92	89.3	61	59.2
Israel	119	66	55.5	48	40.3	78	39	50.0	32	41.0	81	41	50.6	25	30.9	61	35	57.4	25	41.0
Turkey	167	94	56.3	55	32.9	177	84	47.5	55	31.1	185	105	56.8	76	41.1	224	121	54.0	78	34.8
Other	620	279	45.0	152	24.5	480	216	45.0	135	28.1	452	234	51.8	144	31.9	495	263	53.1	162	32.7
Pacifica/Australasia	318	160	50.3	90	28.3	275	128	46.5	81	29.5	269	137	50.9	93	34.6	237	126	53.2	91	38.4
Australia	75	43	57.3	28	37.3	81	36	44.4	28	34.6	79	47	59.5	31	39.2	75	49	65.3	38	50.7
Indonesia	86	20	23.3	8	9.3	82	18	22.0	8	9.8	78	25	32.1	16	20.5	64	23	35.9	16	25.0
New Zealand	44	27	61.4	20	45.5	30	17	56.7	14	46.7	37	22	59.5	14	37.8	35	18	51.4	15	42.9
Other	113	70	61.9	34	30.1	82	57	69.5	31	37.8	75	43	57.3	32	42.7	63	36	57.1	22	34.9
Africa	629	312	49.6	142	22.6	458	223	48.7	139	30.3	463	262	56.6	129	27.9	472	287	60.8	136	28.8
Egypt	107	51	47.7	30	28.0	77	38	49.4	26	33.8	95	47	49.5	26	27.4	73	39	53.4	23	31.5
Nigeria	79	54	68.4	20	25.3	43	26	60.5	14	32.6	57	46	80.7	16	28.1	58	48	82.8	18	31.0
South Africa	70	29	41.4	22	31.4	33	9	27.3	8	24.2	42	20	47.6	11	26.2	58	39	67.2	19	32.8
Other	373	178	47.7	70	18.8	305	150	49.2	91	29.8	269	149	55.4	76	28.3	283	161	56.9	76	26.9
Europe	1,720	1,120	65.1	768	44.7	1,673	1,082	64.7	814	48.7	1,906	1,323	69.4	932	48.9	1,913	1,395	72.9	1,011	52.8
Greece	152	85	55.9	57	37.5	124	76	61.3	61	49.2	132	81	61.4	58	43.9	117	89	76.1	57	48.7
United Kingdom	206	154	74.8	107	51.9	166	127	76.5	99	59.6	186	140	75.3	103	55.4	215	165	76.7	120	55.8
Germany	246	150	61.0	102	41.5	250	144	57.6	108	43.2	294	193	65.6	137	46.6	266	178	66.9	142	53.4
Italy	102	48	47.1	31	30.4	114	55	48.2	40	35.1	121	65	53.7	45	37.2	102	65	63.7	46	45.1
France	102	58	56.9	38	37.3	106	54	50.9	36	34.0	118	84	71.2	46	39.0	110	72	65.5	47	42.7
Spain	120	84	70.0	58	48.3	86	47	54.7	38	44.2	98	55	56.1	37	37.8	100	59	59.0	40	40.0
Other	792	541	68.3	375	47.3	827	579	70.0	432	52.2	957	705	73.7	506	52.9	1,003	767	76.5	559	55.7
North/South America	1,426	672	47.1	450	31.6	1,204	591	49.1	445	37.0	1,336	676	50.6	462	34.6	1,339	717	53.5	532	39.7
Canada	505	269	53.3	190	37.6	422	240	56.9	194	46.0	461	282	61.2	195	42.3	473	306	64.7	235	49.7
Mexico	180	72	40.0	41	22.8	165	74	44.8	48	29.1	197	61	31.0	43	21.8	191	65	34.0	46	24.1
Argentina	91	60	65.9	39	42.9	93	56	60.2	45	48.4	95	58	61.1	40	42.1	64	38	59.4	28	43.8
Brazil	262	66	25.2	46	17.6	171	46	26.9	35	20.5	190	63	33.2	43	22.6	205	70	34.1	49	23.9
Chile	42	14	33.3	10	23.8	35	16	45.7	10	28.6	33	19	57.6	14	42.4	48	29	60.4	26	54.2
Colombia	54	27	50.0	18	33.3	53	27	50.9	24	45.3	37	22	59.5	12	32.4	58	30	51.7	20	34.5
Peru	45	31	68.9	21	46.7	38	27	71.1	18	47.4	43	24	55.8	19	44.2	38	26	68.4	18	47.4
Other	247	133	53.8	85	34.4	227	105	46.3	71	31.3	280	147	52.5	96	34.3	262	153	58.4	110	42.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1996					1997					1998					1999				
	Total Ph.D. recipients		Plan to stay		Firm plans to stay	Total Ph.D. recipients		Plan to stay		Firm plans to stay	Total Ph.D. recipients		Plan to stay		Firm plans to stay	Total Ph.D. recipients		Plan to stay		Firm plans to stay
	Number	Percent	Number	Percent	Number	Number	Percent	Number	Percent	Number	Number	Percent	Number	Percent	Number	Number	Percent	Number	Percent	Number
S&E fields																				
East/South Asia	6,879	4,960	72.1	3,130	45.5	5,764	3,997	69.3	2,770	48.1	5,608	4,279	76.3	2,938	52.4	4,957	3,907	78.8	2,603	52.5
China	2,970	2,697	90.8	1,689	56.9	2,290	1,891	82.6	1,305	57.0	2,415	2,163	89.6	1,472	61.0	2,187	1,981	90.6	1,323	60.5
Taiwan	1,153	596	51.7	320	27.8	1,025	595	58.0	370	36.1	891	566	63.5	340	38.2	732	457	62.4	269	36.7
Japan	165	71	43.0	44	26.7	149	64	43.0	49	32.9	152	69	45.4	44	28.9	156	84	53.8	54	34.6
South Korea	977	368	37.7	237	24.3	842	346	41.1	246	29.2	786	402	51.1	252	32.1	738	463	62.7	297	40.2
India	1,276	1,084	85.0	753	59.0	1,211	987	81.5	720	59.5	1,082	939	86.8	734	67.8	888	796	89.6	574	64.6
Other	338	144	42.6	87	25.7	247	114	46.2	80	32.4	282	140	49.6	96	34.0	256	126	49.2	86	33.6
West Asia	883	509	57.6	284	32.2	702	374	53.3	248	35.3	667	396	59.4	250	37.5	701	443	63.2	290	41.4
Iran	149	119	79.9	58	38.9	112	73	65.2	52	46.4	91	69	75.8	43	47.3	91	81	89.0	52	57.1
Israel	80	51	63.8	39	48.8	52	33	63.5	28	53.8	50	24	48.0	13	26.0	39	25	64.1	20	51.3
Turkey	148	88	59.5	52	35.1	160	80	50.0	52	32.5	161	93	57.8	65	40.4	186	109	58.6	73	39.2
Other	506	251	49.6	135	26.7	378	188	49.7	116	30.7	365	210	57.5	129	35.3	385	228	59.2	145	37.7
Pacifica/Australasia	236	121	51.3	66	28.0	196	93	47.4	63	32.1	193	96	49.7	66	34.2	156	93	59.6	65	41.7
Australia	43	26	60.5	17	39.5	47	22	46.8	22	46.8	46	26	56.5	17	37.0	46	35	76.1	28	60.9
Indonesia	69	18	26.1	8	11.6	62	14	22.6	6	9.7	60	20	33.3	14	23.3	44	19	43.2	12	27.3
New Zealand	32	20	62.5	15	46.9	21	13	61.9	11	52.4	26	13	50.0	9	34.6	17	7	41.2	6	35.3
Other	92	57	62.0	26	28.3	66	44	66.7	24	36.4	61	37	60.7	26	42.6	49	32	65.3	19	38.8
Africa	446	217	48.7	101	22.6	336	170	50.6	113	33.6	339	196	57.8	100	29.5	327	207	63.3	99	30.3
Egypt	89	43	48.3	26	29.2	70	35	50.0	23	32.9	84	41	48.8	25	29.8	60	32	53.3	19	31.7
Nigeria	40	27	67.5	9	22.5	23	15	65.2	9	39.1	34	28	82.4	12	35.3	34	29	85.3	6	17.6
South Africa	46	22	47.8	16	34.8	23	8	34.8	7	30.4	21	12	57.1	8	38.1	34	24	70.6	13	38.2
Other	271	125	46.1	50	18.5	220	112	50.9	74	33.6	200	115	57.5	55	27.5	199	122	61.3	61	30.7
Europe	1,265	807	63.8	568	44.9	1,275	835	65.5	637	50.0	1,478	1,030	69.7	743	50.3	1,453	1,076	74.1	799	55.0
Greece	133	76	57.1	51	38.3	104	67	64.4	55	52.9	104	67	64.4	50	48.1	99	77	77.8	52	52.5
United Kingdom	119	86	72.3	61	51.3	92	67	72.8	52	56.5	124	91	73.4	72	58.1	141	112	79.4	87	61.7
Germany	171	103	60.2	75	43.9	178	100	56.2	76	42.7	205	122	59.5	89	43.4	179	116	64.8	96	53.6
Italy	77	34	44.2	22	28.6	85	40	47.1	30	35.3	93	47	50.5	37	39.8	73	46	63.0	37	50.7
France	69	31	44.9	22	31.9	72	35	48.6	20	27.8	76	49	64.5	26	34.2	78	49	62.8	32	41.0
Spain	66	41	62.1	28	42.4	52	24	46.2	18	34.6	60	32	53.3	22	36.7	54	26	48.1	16	29.6
Other	630	436	69.2	309	49.0	692	502	72.5	386	55.8	816	622	76.2	447	54.8	829	650	78.4	479	57.8
North/South America	989	484	48.9	322	32.6	855	424	49.6	321	37.5	960	484	50.4	341	35.5	954	506	53.0	377	39.5
Canada	277	182	65.7	130	46.9	248	161	64.9	135	54.4	277	184	66.4	133	48.0	283	205	72.4	157	55.5
Mexico	158	59	37.3	32	20.3	135	56	41.5	38	28.1	164	49	29.9	35	21.3	158	51	32.3	37	23.4
Argentina	67	43	64.2	27	40.3	67	41	61.2	32	47.8	72	45	62.5	35	48.6	52	32	61.5	24	46.2
Brazil	207	53	25.6	37	17.9	145	38	26.2	29	20.0	152	54	35.5	38	25.0	156	48	30.8	34	21.8
Chile	36	12	33.3	8	22.2	29	12	41.4	8	27.6	24	14	58.3	10	41.7	34	19	55.9	17	50.0
Colombia	42	20	47.6	13	31.0	38	20	52.6	18	47.4	26	14	53.8	6	23.1	45	22	48.9	16	35.6
Peru	30	21	70.0	14	46.7	29	21	72.4	13	44.8	33	18	54.5	14	42.4	28	18	64.3	11	39.3
Other	172	94	54.7	61	35.5	164	75	45.7	48	29.3	212	106	50.0	70	33.0	198	111	56.1	81	40.9

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990-99

Region/country/location of origin	1996					1997					1998					1999				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay	
		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent		Number	Percent	Number	Percent
Natural sciences																				
East/South Asia	3,585	2,832	79.0	1,847	51.5	3,009	2,287	76.0	1,631	54.2	2,988	2,451	82.0	1,716	57.4	2,687	2,265	84.3	1,528	56.9
China	1,969	1,813	92.1	1,164	59.1	1,513	1,266	83.7	895	59.2	1,582	1,427	90.2	990	62.6	1,460	1,329	91.0	882	60.4
Taiwan	462	259	56.1	155	33.5	474	315	66.5	220	46.4	419	289	69.0	184	43.9	322	225	69.9	145	45.0
Japan	54	28	51.9	21	38.9	37	26	70.3	20	54.1	56	37	66.1	27	48.2	54	39	72.2	23	42.6
South Korea	430	208	48.4	146	34.0	341	190	55.7	147	43.1	328	210	64.0	141	43.0	314	232	73.9	168	53.5
India	520	454	87.3	316	60.8	515	417	81.0	295	57.3	471	412	87.5	317	67.3	406	368	90.6	259	63.8
Other	150	70	46.7	45	30.0	129	73	56.6	54	41.9	132	76	57.6	57	43.2	131	72	55.0	51	38.9
West Asia	365	216	59.2	126	34.5	260	146	56.2	103	39.6	272	180	66.2	117	43.0	305	190	62.3	129	42.3
Iran	68	55	80.9	29	42.6	45	30	66.7	21	46.7	40	32	80.0	20	50.0	43	35	81.4	25	58.1
Israel	41	32	78.0	25	61.0	22	17	77.3	16	72.7	24	14	58.3	10	41.7	17	13	76.5	9	52.9
Turkey	48	26	54.2	16	33.3	40	16	40.0	9	22.5	54	39	72.2	26	48.1	70	37	52.9	25	35.7
Other	208	103	49.5	56	26.9	153	83	54.2	57	37.3	154	95	61.7	61	39.6	175	105	60.0	70	40.0
Pacifica/Australasia	138	82	59.4	45	32.6	97	51	52.6	36	37.1	99	48	48.5	29	29.3	85	54	63.5	36	42.4
Australia	27	15	55.6	10	37.0	24	13	54.2	13	54.2	25	15	60.0	7	28.0	20	15	75.0	14	70.0
Indonesia	39	16	41.0	7	17.9	20	5	25.0	2	10.0	22	7	31.8	6	27.3	15	6	40.0	3	20.0
New Zealand	21	16	76.2	13	61.9	10	6	60.0	5	50.0	16	7	43.8	4	25.0	11	6	54.5	5	45.5
Other	51	35	68.6	15	29.4	43	27	62.8	16	37.2	36	19	52.8	12	33.3	39	27	69.2	14	35.9
Africa	185	88	47.6	39	21.1	161	80	49.7	47	29.2	141	86	61.0	45	31.9	151	95	62.9	49	32.5
Egypt	19	8	42.1	4	21.1	20	13	65.0	8	40.0	17	9	52.9	7	41.2	11	5	45.5	4	36.4
Nigeria	11	6	54.5	3	27.3	9	5	55.6	2	22.2	17	16	94.1	7	41.2	13	13	100.0	2	15.4
South Africa	21	8	38.1	7	33.3	9	1	11.1	1	11.1	11	5	45.5	4	36.4	20	13	65.0	10	50.0
Other Africa	134	66	49.3	25	18.7	123	61	49.6	36	29.3	96	56	58.3	27	28.1	107	64	59.8	33	30.8
Europe	751	502	66.8	358	47.7	812	539	66.4	410	50.5	907	659	72.7	479	52.8	934	712	76.2	554	59.3
Greece	64	34	53.1	20	31.3	54	34	63.0	29	53.7	46	31	67.4	23	50.0	44	31	70.5	24	54.5
United Kingdom	59	44	74.6	32	54.2	52	38	73.1	29	55.8	82	64	78.0	50	61.0	91	71	78.0	61	67.0
Germany	114	70	61.4	52	45.6	117	64	54.7	48	41.0	128	72	56.3	53	41.4	114	77	67.5	64	56.1
Italy	39	21	53.8	15	38.5	48	20	41.7	16	33.3	50	28	56.0	21	42.0	38	23	60.5	21	55.3
France	32	12	37.5	8	25.0	44	26	59.1	14	31.8	38	23	60.5	10	26.3	37	23	62.2	14	37.8
Spain	37	25	67.6	19	51.4	26	12	46.2	7	26.9	32	14	43.8	11	34.4	21	12	57.1	5	23.8
Other	406	296	72.9	212	52.2	471	345	73.2	267	56.7	531	427	80.4	311	58.6	589	475	80.6	365	62.0
North/South America	521	258	49.5	176	33.8	468	233	49.8	180	38.5	521	263	50.5	188	36.1	503	270	53.7	209	41.6
Canada	145	96	66.2	73	50.3	130	93	71.5	81	62.3	146	103	70.5	77	52.7	145	113	77.9	89	61.4
Mexico	94	34	36.2	17	18.1	78	31	39.7	21	26.9	100	27	27.0	19	19.0	85	26	30.6	20	23.5
Argentina	45	31	68.9	21	46.7	34	19	55.9	17	50.0	42	27	64.3	21	50.0	28	16	57.1	13	46.4
Brazil	108	23	21.3	16	14.8	83	20	24.1	16	19.3	77	27	35.1	20	26.0	79	23	29.1	17	21.5
Chile	19	9	47.4	7	36.8	18	7	38.9	4	22.2	16	9	56.3	7	43.8	17	10	58.8	10	58.8
Colombia	20	11	55.0	8	40.0	28	15	53.6	13	46.4	14	7	50.0	3	21.4	32	17	53.1	14	43.8
Peru	11	6	54.5	4	36.4	8	6	75.0	4	50.0	14	10	71.4	9	64.3	8	6	75.0	3	37.5
Other	79	48	60.8	30	38.0	89	42	47.2	24	27.0	112	53	47.3	32	28.6	109	59	54.1	43	39.4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1996					1997					1998					1999				
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Social and behavioral sciences																				
East/South Asia	810	369	45.6	211	26.0	692	312	45.1	194	28.0	651	326	50.1	196	30.1	649	350	53.9	223	34.4
China	192	155	80.7	89	46.4	140	104	74.3	69	49.3	165	133	80.6	82	49.7	144	114	79.2	80	55.6
Taiwan	116	27	23.3	6	5.2	118	40	33.9	16	13.6	94	29	30.9	17	18.1	108	34	31.5	12	11.1
Japan	79	35	44.3	19	24.1	75	29	38.7	23	30.7	76	29	38.2	16	21.1	72	31	43.1	22	30.6
South Korea	221	41	18.6	22	10.0	200	43	21.5	27	13.5	176	52	29.5	27	15.3	160	57	35.6	29	18.1
India	131	91	69.5	61	46.6	109	78	71.6	52	47.7	93	70	75.3	48	51.6	114	94	82.5	68	59.6
Other	71	20	28.2	14	19.7	50	18	36.0	7	14.0	47	13	27.7	6	12.8	51	20	39.2	12	23.5
West Asia	149	57	38.3	36	24.2	121	44	36.4	24	19.8	109	45	41.3	31	28.4	109	56	51.4	43	39.4
Iran	13	11	84.6	4	30.8	7	5	71.4	4	57.1	8	4	50.0	3	37.5	6	5	83.3	2	33.3
Israel	22	10	45.5	8	36.4	20	12	60.0	9	45.0	17	7	41.2	3	17.6	17	9	52.9	9	52.9
Turkey	27	11	40.7	9	33.3	25	5	20.0	2	8.0	28	8	28.6	8	28.6	21	13	61.9	11	52.4
Other	87	25	28.7	15	17.2	69	22	31.9	9	13.0	56	26	46.4	17	30.4	65	29	44.6	21	32.3
Pacifica/Australasia	59	19	32.2	10	16.9	53	24	45.3	14	26.4	48	20	41.7	17	35.4	46	21	45.7	16	34.8
Australia	10	6	60.0	4	40.0	15	7	46.7	7	46.7	17	8	47.1	7	41.2	18	13	72.2	9	50.0
Indonesia	15	0	0.0	0	0.0	20	3	15.0	0	0.0	11	0	0.0	0	0.0	15	4	26.7	3	20.0
New Zealand	9	3	33.3	2	22.2	5	4	80.0	4	80.0	6	2	33.3	2	33.3	5	1	20.0	1	20.0
Other	25	10	40.0	4	16.0	13	10	76.9	3	23.1	14	10	71.4	8	57.1	8	3	37.5	3	37.5
Africa	118	43	36.4	13	11.0	70	31	44.3	19	27.1	92	49	53.3	22	23.9	81	50	61.7	20	24.7
Egypt	11	4	36.4	1	9.1	5	4	80.0	3	60.0	7	2	28.6	1	14.3	2	1	50.0	1	50.0
Nigeria	18	10	55.6	1	5.6	6	3	50.0	2	33.3	10	6	60.0	3	30.0	13	9	69.2	3	23.1
South Africa	12	5	41.7	2	16.7	5	2	40.0	1	20.0	7	5	71.4	3	42.9	5	5	100.0	1	20.0
Other	77	24	31.2	9	11.7	54	22	40.7	13	24.1	68	36	52.9	15	22.1	61	35	57.4	15	24.6
Europe	275	148	53.8	98	35.6	229	139	60.7	103	45.0	276	174	63.0	125	45.3	247	159	64.4	119	48.2
Greece	22	13	59.1	9	40.9	20	13	65.0	11	55.0	11	8	72.7	7	63.6	20	17	85.0	11	55.0
United Kingdom	50	35	70.0	24	48.0	28	18	64.3	15	53.6	30	17	56.7	13	43.3	37	30	81.1	22	59.5
Germany	41	23	56.1	15	36.6	34	17	50.0	13	38.2	48	34	70.8	24	50.0	29	21	72.4	17	58.6
Italy	30	10	33.3	6	20.0	26	15	57.7	12	46.2	27	13	48.1	11	40.7	20	10	50.0	8	40.0
France	11	5	45.5	2	18.2	17	7	41.2	4	23.5	15	11	73.3	7	46.7	18	13	72.2	10	55.6
Spain	21	10	47.6	5	23.8	16	8	50.0	7	43.8	23	15	65.2	9	39.1	21	7	33.3	6	28.6
Other	100	52	52.0	37	37.0	88	61	69.3	41	46.6	122	76	62.3	54	44.3	102	61	59.8	45	44.1
North/South America	253	124	49.0	82	32.4	212	97	45.8	67	31.6	248	114	46.0	78	31.5	250	121	48.4	84	33.6
Canada	87	55	63.2	36	41.4	74	37	50.0	28	37.8	96	54	56.3	36	37.5	87	51	58.6	35	40.2
Mexico	27	10	37.0	7	25.9	32	11	34.4	6	18.8	28	4	14.3	3	10.7	32	11	34.4	8	25.0
Argentina	14	5	35.7	2	14.3	19	10	52.6	5	26.3	17	10	58.8	7	41.2	16	10	62.5	5	31.3
Brazil	32	11	34.4	9	28.1	19	6	31.6	4	21.1	28	11	39.3	7	25.0	37	10	27.0	7	18.9
Chile	9	2	22.2	1	11.1	10	5	50.0	4	40.0	7	4	57.1	2	28.6	11	6	54.5	5	45.5
Colombia	15	6	40.0	2	13.3	6	2	33.3	2	33.3	5	2	40.0	1	20.0	6	1	16.7	1	16.7
Peru	14	11	78.6	8	57.1	13	9	69.2	6	46.2	11	4	36.4	3	27.3	15	8	53.3	6	40.0
Other	55	24	43.6	17	30.9	39	17	43.6	12	30.8	56	25	44.6	19	33.9	46	24	52.2	17	37.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-32.

Foreign doctoral recipients from U.S. universities who plan to stay in United States, by field and location of origin: 1990–99

Region/country/location of origin	1996				1997				1998				1999							
	Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay		Total Ph.D. recipients	Plan to stay		Firm plans to stay	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Engineering																				
East/South Asia	2,484	1,759	70.8	1,072	43.2	2,063	1,398	67.8	945	45.8	1,969	1,502	76.3	1,026	52.1	1,621	1,292	79.7	852	52.6
China	809	729	90.1	436	53.9	637	521	81.8	341	53.5	668	603	90.3	400	59.9	583	538	92.3	361	61.9
Taiwan	575	310	53.9	159	27.7	433	240	55.4	134	30.9	378	248	65.6	139	36.8	302	198	65.6	112	37.1
Japan	32	8	25.0	4	12.5	37	9	24.3	6	16.2	20	3	15.0	1	5.0	30	14	46.7	9	30.0
South Korea	326	119	36.5	69	21.2	301	113	37.5	72	23.9	282	140	49.6	84	29.8	264	174	65.9	100	37.9
India	625	539	86.2	376	60.2	587	492	83.8	373	63.5	518	457	88.2	369	71.2	368	334	90.8	247	67.1
Other	117	54	46.2	28	23.9	68	23	33.8	19	27.9	103	51	49.5	33	32.0	74	34	45.9	23	31.1
West Asia	369	236	64.0	122	33.1	321	184	57.3	121	37.7	286	171	59.8	102	35.7	287	197	68.6	118	41.1
Iran	68	53	77.9	25	36.8	60	38	63.3	27	45.0	43	33	76.7	20	46.5	42	41	97.6	25	59.5
Israel	17	9	52.9	6	35.3	10	4	40.0	3	30.0	9	3	33.3	0	0.0	5	3	60.0	2	40.0
Turkey	73	51	69.9	27	37.0	95	59	62.1	41	43.2	79	46	58.2	31	39.2	95	59	62.1	37	38.9
Other	211	123	58.3	64	30.3	156	83	53.2	50	32.1	155	89	57.4	51	32.9	145	94	64.8	54	37.2
Pacifica/Australasia	39	20	51.3	11	28.2	46	18	39.1	13	28.3	46	28	60.9	20	43.5	25	18	72.0	13	52.0
Australia	6	5	83.3	3	50.0	8	2	25.0	2	25.0	4	3	75.0	3	75.0	8	7	87.5	5	62.5
Indonesia	15	2	13.3	1	6.7	22	6	27.3	4	18.2	27	13	48.1	8	29.6	14	9	64.3	6	42.9
New Zealand	2	1	50.0	0	0.0	6	3	50.0	2	33.3	4	4	100.0	3	75.0	1	0	0.0	0	0.0
Other	16	12	75.0	7	43.8	10	7	70.0	5	50.0	11	8	72.7	6	54.5	2	2	100.0	2	100.0
Africa	143	86	60.1	49	34.3	105	59	56.2	47	44.8	106	61	57.5	33	31.1	95	62	65.3	30	31.6
Egypt	59	31	52.5	21	35.6	45	18	40.0	12	26.7	60	30	50.0	17	28.3	47	26	55.3	14	29.8
Nigeria	11	11	100.0	5	45.5	8	7	87.5	5	62.5	7	6	85.7	2	28.6	8	7	87.5	1	12.5
South Africa	13	9	69.2	7	53.8	9	5	55.6	5	55.6	3	2	66.7	1	33.3	9	6	66.7	2	22.2
Other Africa	60	35	58.3	16	26.7	43	29	67.4	25	58.1	36	23	63.9	13	36.1	31	23	74.2	13	41.9
Europe	239	157	65.7	112	46.9	234	157	67.1	124	53.0	295	197	6.8	139	47.1	272	205	75.4	126	46.3
Greece	47	29	61.7	22	46.8	30	20	66.7	15	50.0	47	28	59.6	20	42.6	35	29	82.9	17	48.6
United Kingdom	10	7	70.0	5	50.0	12	11	91.7	8	66.7	12	10	83.3	9	75.0	13	11	84.6	4	30.8
Germany	16	10	62.5	8	50.0	27	19	70.4	15	55.6	29	16	55.2	12	41.4	36	18	50.0	15	41.7
Italy	8	3	37.5	1	12.5	11	5	45.5	2	18.2	16	6	37.5	5	31.3	15	13	86.7	8	53.3
France	26	14	53.8	12	46.2	11	2	18.2	2	18.2	23	15	65.2	9	39.1	23	13	56.5	8	34.8
Spain	8	6	75.0	4	50.0	10	4	40.0	4	40.0	5	3	60.0	2	40.0	12	7	58.3	5	41.7
Other	124	88	71.0	60	48.4	133	96	72.2	78	58.6	163	119	73.0	82	50.3	138	114	82.6	69	50.0
North/South America ..	215	102	47.4	64	29.8	175	94	53.7	74	42.3	191	107	56.0	75	39.3	201	115	57.2	84	41.8
Canada	45	31	68.9	21	46.7	44	31	70.5	26	59.1	35	27	77.1	20	57.1	51	41	80.4	33	64.7
Mexico	37	15	40.5	8	21.6	25	14	56.0	11	44.0	36	18	50.0	13	36.1	41	14	34.1	9	22.0
Argentina	8	7	87.5	4	50.0	14	12	85.7	10	71.4	13	8	61.5	7	53.8	8	6	75.0	6	75.0
Brazil	67	19	28.4	12	17.9	43	12	27.9	9	20.9	47	16	34.0	11	23.4	40	15	37.5	10	25.0
Chile	8	1	12.5	0	0.0	1	0	0.0	0	0.0	1	1	100.0	1	100.0	6	3	50.0	2	33.3
Colombia	7	3	42.9	3	42.9	4	3	75.0	3	75.0	7	5	71.4	2	28.6	7	4	57.1	1	14.3
Peru	5	4	80.0	2	40.0	8	6	75.0	3	37.5	8	4	50.0	2	25.0	5	4	80.0	2	40.0
Other	38	22	57.9	14	36.8	36	16	44.4	12	33.3	44	28	63.6	19	43.2	43	28	65.1	21	48.8

NOTES: Data include foreign doctoral recipients with either permanent or temporary visas. Doctoral recipients who "plan to stay" think that they will locate in the United States; those with "firm plans" have a postdoctoral research appointment or academic, industrial, or other firm employment in the United States. Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological and agricultural sciences, as well as mathematics and computer sciences.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Earned Doctorates, unpublished tabulations, 2001.

Appendix table 2-33.

Bachelor's S&E degrees in the United States and Asia, by field: 1975–98 (selected years)

Year	United States			Asia		
	Natural sciences	Social and behavioral sciences	Engineering	Natural sciences	Social and behavioral sciences	Engineering
1975	110,584	163,147	39,824	127,689	137,245	92,740
1977	113,908	148,533	41,357	136,966	147,682	99,657
1979	110,790	138,903	53,469	141,305	162,506	109,084
1981	110,468	132,607	63,717	146,856	165,103	115,720
1983	116,250	128,651	72,670	152,937	159,327	119,739
1985	129,668	125,033	77,572	200,274	174,664	197,965
1987	125,166	131,935	74,425	216,409	182,739	226,408
1989	109,137	146,737	66,947	230,709	186,057	254,192
1991	105,383	170,105	62,187	239,335	225,104	270,948
1993	116,745	186,585	62,705	251,899	233,289	281,573
1994	122,976	187,273	63,012	267,361	238,155	307,280
1995	129,465	185,312	63,371	275,483	254,753	322,792
1996	135,943	185,617	63,114	270,981	261,568	317,682
1997	140,346	185,784	62,352	279,382	285,507	361,727
1998	144,441	185,263	60,914	280,168	295,556	372,898

NOTES: Asian data include degrees earned in China, India, Japan, South Korea, and Taiwan. Natural sciences here include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences as well as mathematics and computer sciences.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Human Resources for Science and Technology: The Asian Region*, NSF 93-303 (Washington, DC); NSF/SRS, *Science and Engineering Degrees 1966–98* NSF 01-325 (Arlington, VA, 2001); **China**—National Research Center for Science and Technology for Development, unpublished tabulations; **South Korea**—Ministry of Education, *Statistical Yearbook of Education 2000* (Seoul, 2001); **Japan**—Ministry of Education, Science and Culture, *Monbusho Survey of Education* (Tokyo, 2001); **Taiwan**—Ministry of Education, *Education Statistics of the Republic of China* (Taipei, 2001).

Appendix table 2-34.

First university degrees and ratio of first university degrees and S&E degrees to 24-year-old population, in selected regions and locations, by sex: 1999 or most recent year

Region/location	All first university degrees	Total science & engineering	S&E degree fields			Number of 24-year-olds	Ratio of ^a			
			Natural sciences ^b	Social and behavioral sciences ^c	Engineering		First univ. degrees	NS&E degrees	Social and behavioral sciences degrees	
Male										
Asia										
Japan	335,815	276,468	23,419	160,267	92,782	906,774	37.0	12.8	17.7	
South Korea	96,952	62,637	14,299	9,789	38,549	426,977	22.7	12.4	2.3	
Taiwan	43,245	24,616	8,103	1,858	14,655	197,531	21.9	11.5	0.9	
Middle East										
Israel	9,589	5,602	1,740	2,413	1,449	55,400	17.3	5.8	4.4	
Europe										
Austria	7,454	2,779	1,046	375	1,358	49,200	15.2	4.9	0.8	
Belgium	6,808	2,387	927	320	1,140	64,770	10.5	3.2	0.5	
Czech Republic	9,945	4,351	1,384	185	2,782	88,600	11.2	4.7	0.2	
Denmark	6,153	2,997	1,379	1,042	576	35,071	17.5	5.6	3.0	
Germany	108,946	59,197	8,500	23,035	27,662	470,589	23.2	7.7	3.8	
Hungary	15,429	5,896	1,673	799	3,424	80,000	19.3	6.4	1.0	
Ireland	7,145	2,735	1,490	192	1,053	32,679	21.9	7.8	0.6	
Italy	58,931	26,257	8,108	4,883	13,266	401,404	14.7	5.3	1.2	
The Netherlands	36,876	14,576	4,341	3,719	6,516	100,858	36.6	10.8	3.7	
Norway	12,656	3,608	1,107	612	1,889	28,881	43.8	10.4	2.1	
Spain	86,070	31,255	13,372	5,217	12,666	331,370	26.0	7.9	1.6	
Sweden	11,625	5,788	1,461	681	3,646	52,122	22.3	9.8	1.3	
Switzerland	11,059	3,698	1,224	410	2,064	41,910	26.4	7.8	1.0	
Turkey	69,066	27,439	9,617	11,132	6,690	585,730	11.8	2.8	1.9	
United Kingdom ^b	121,676	54,988	27,464	8,766	18,758	368,677	33.0	12.5	2.4	
North America										
Canada	51,268	25,631	9,183	9,575	6,873	202,414	25.3	7.9	4.7	
Mexico	134,563	27,203	7,585	2,963	16,655	1,027,892	13.1	2.4	0.3	
United States	525,714	200,221	78,906	71,740	49,575	1,714,571	30.7	7.5	4.2	
Oceania										
Australia	51,985	16,138	9,265	2,068	4,805	139,456	37.3	10.1	1.5	
New Zealand	7,090	1,961	1,494	102	365	30,400	23.3	6.1	0.3	
Female										
Asia										
Japan	196,621	74,058	9,299	54,101	10,658	864,837	22.7	2.3	6.3	
South Korea	115,774	26,034	13,008	6,472	6,554	399,873	29.0	4.9	1.6	
Taiwan	44,176	10,106	4,808	3,315	1,983	187,363	23.6	3.6	1.8	
Middle East										
Israel	14,730	5,469	1,155	3,978	336	53,600	27.5	2.8	7.4	

See explanatory notes, if any, and SOURCE at end of table

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Appendix table 2-34.

First university degrees and ratio of first university degrees and S&E degrees to 24-year-old population, in selected regions and locations, by sex: 1999 or most recent year

Region/location	All first university degrees	Total science & engineering	S&E degree fields			Number of 24-year-olds	Ratio of ^a		
			Natural sciences ^b	Social and behavioral sciences ^c	Engineering		First univ. degrees	NS&E degrees to 24 year-old population	Social and behavioral sciences degrees
Europe									
Austria	6,911	1,391	591	690	110	47,200	14.6	1.5	1.5
Belgium	6,299	1,410	734	545	131	62,582	10.1	1.4	0.9
Czech Republic	8,854	1,065	231	273	561	85,200	10.4	0.9	0.3
Denmark	5798	2,009	883	927	199	33,744	17.2	3.2	2.7
Germany	88,205	31,514	11,055	15,458	5,001	448,555	19.7	3.6	3.4
Hungary	22,559	3,193	1,328	993	872	76,000	29.7	2.9	1.3
Ireland	8,309	2,157	1,370	549	238	30,958	26.8	5.2	1.8
Italy	74,037	20,025	9,757	7,820	2,448	387,732	19.1	3.1	2.0
Norway	21,412	2,177	610	897	670	30,046	71.3	4.3	3.0
The Netherlands	38,297	5,872	1,773	3,441	658	96,820	39.6	2.5	3.6
Spain	121,828	22,405	10,894	7,925	3,586	315,870	38.6	4.6	2.5
Sweden	18,162	3,809	1,022	1,704	1,083	52,845	34.4	4.0	3.2
Switzerland	7,587	1,477	505	836	136	40,354	18.8	1.6	2.1
Turkey	46,040	16,280	7,502	7,090	1,688	574,231	8.0	1.6	1.2
United Kingdom ^b	141,995	38,011	22,249	11,886	3,876	350,153	40.6	7.5	3.4
North America									
Canada	73,593	28,737	9,456	17,554	1,727	194,735	37.8	5.7	9.0
Mexico	56,461	15,299	4,576	6,020	4,703	1,010,514	5.6	0.9	0.6
United States	673,865	190,397	65,535	113,523	11,339	1,688,468	39.9	4.6	6.7
Oceania									
Australia	72,777	11,211	6,962	3,248	1,001	133,476	54.5	6.0	2.4
New Zealand	11,294	1,565	1,164	221	180	29,000	38.9	4.6	0.8

NS&E = natural sciences and engineering

^aRatios are number of degrees per 100 of the 24-year-old population.^bIncludes former colleges and polytechnics.

NOTES: Data for Japan, Taiwan, Germany, and the United Kingdom are for 1999. All other locations are for 1998. Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences, as well as mathematics and computer science degrees. Japanese social science data also include business administration. Mexican social science data are estimated.

SOURCES: **ASIA: Japan**—Ministry of Education, Science, and Culture (Monbusho), *Monbusho Survey of Education* (Tokyo); **South Korea**—Ministry of Education, *Statistical Yearbook of Education* (Seoul, 2000); **Taiwan**—Ministry of Education, *Educational Statistics of the Republic of China* (Taipei, 2000); **EUROPE: France**—Ministère de l'Éducation Nationale, *Repères et Références Statistiques sur les Enseignements et la Formation* (Vanves, 2000); **Germany**—Statistisches Bundesamt Wiesbaden, *Prüfungen an Hochschulen* (Wiesbaden, 2000); **United Kingdom**—Higher Education Statistics Agency, unpublished tabulations; **NORTH AMERICA: Canada**—Association of Universities and Colleges, unpublished tabulations, 1998; **Mexico**—Asociación Nacional de Universidades e Instituciones de Educación Superior, *Anuario Estadístico 1999: Población Escolar de Licenciatura en Universidades e Institutos Tecnológicos* (2000); **United States**—National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Degrees 1966–98* NSF 01-325 (Arlington, VA, 2001).

Appendix table 2-35.

Enrollment of foreign students in U.K. universities, by level, field, and 10 top countries of origin: 1995 and 1999

Country of origin	Undergraduate					Graduate				
	Total S&E	Natural sciences	Math and computer sciences	Social and behavioral sciences	Engineering	Total S&E	Natural sciences	Math and computer sciences	Social and behavioral sciences	
			1995	Engineering	1999			Engineering	Engineering	
Total S&E students	393,039	131,367	69,729	79,257	112,686	99,976	35,270	15,167	22,891	26,648
Total foreign S&E students	34,530	7,774	4,266	6,553	15,937	28,848	8,096	3,491	8,005	9,256
Greece	3,830	723	613	570	1,924	2,407	577	461	498	871
Malaysia	3,756	174	486	400	2,696	1,567	324	197	222	824
Ireland	3,114	1,297	335	222	1,260	1,043	486	109	167	281
Germany (West)	2,662	1,006	212	640	804	1,286	389	196	342	359
France	2,639	883	273	472	1,011	950	291	77	185	397
Hong Kong	2,197	216	406	467	1,108	1,031	91	188	397	355
Singapore	1,986	138	197	264	1,387	574	79	153	88	254
United States	1,216	519	47	559	91	1,093	243	69	674	107
Canada	163	88	17	38	20	604	141	36	320	107
China	150	5	21	14	110	1,325	406	136	124	659
Other countries	12,817	2,725	1,659	2,907	5,526	16,968	5,069	1,869	4,988	5,042
Percent foreign	8.8	5.9	6.1	8.3	14.1	28.9	23.0	23.0	35.0	34.7
1999										
Total S&E students	419,527	149,638	85,901	84,088	99,900	116,451	40,557	19,399	27,682	28,813
Total foreign S&E students	48,866	11,261	6,649	10,145	20,811	36,631	9,952	4,753	11,102	10,824
Greece	10,643	2,043	1,465	1,880	5,255	4,284	1,085	643	823	1,733
Malaysia	4,206	165	446	322	3,273	1,325	239	226	181	679
France	3,575	1,045	368	582	1,580	1,729	606	136	281	706
Ireland	3,489	1,717	433	351	988	1,401	589	261	259	292
Germany	2,631	838	245	832	716	1,834	570	227	525	512
United States	1,974	646	115	1,080	133	1,458	380	113	808	157
Hong Kong	1,720	276	458	285	701	987	143	118	425	301
Japan	718	215	76	358	69	927	152	35	649	91
India	470	35	68	93	274	848	202	133	301	212
China	332	41	149	44	98	1,486	326	279	199	682
Other countries	19,108	4,240	2,826	4,318	7,724	20,352	5,660	2,582	6,651	5,459
Percent foreign	11.6	7.5	7.7	12.1	20.8	31.5	24.5	24.5	40.1	37.6

NOTE: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, and ocean, biological, and agricultural sciences.

SOURCE: Higher Education Statistics Agency (Cheltenham, 2001), unpublished tabulations.

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Appendix table 2-36.

Enrollment of foreign S&E students at French universities, by level, field, and country of origin: 1999

Country of origin	Total all fields	Total S&E	Natural sciences	Mathematics and computer sciences	Social and behavioral sciences	Engineering	Other
Master's level							
Total	174,366	75,179	18,709	12,371	37,973	6,126	99,187
Foreign students	14,592	5,530	1,229	956	2,796	549	9,062
Algeria	2,944	1,171	466	249	177	279	1,773
Morocco	3,948	1,059	239	176	523	121	2,889
Senegal	1,163	199	31	54	98	16	964
Cameroon	837	255	90	56	88	21	582
Spain	1,063	217	70	31	84	32	846
Tunisia	957	199	41	44	98	16	758
Germany	1,901	166	53	24	62	27	1,735
Italy	991	165	36	24	98	7	826
Madagascar	534	155	18	19	107	11	379
Greece	721	136	14	7	114	1	585
Other countries	522	133	57	8	52	16	389
Percent foreign	8.4	7.4	6.6	7.7	7.4	9.0	9.1
Doctoral level							
Total	62,407	35,497	15,367	5,055	10,881	4,194	26,910
Foreign students	16,589	9,319	2,830	1,741	3,661	1,087	7,270
Algeria	1,600	1,103	288	256	355	204	497
Morocco	1,607	957	293	214	321	129	650
Tunisia	1,344	739	159	212	275	93	605
Italy	689	354	170	51	101	32	335
Brazil	526	335	92	81	135	27	191
Romania	464	326	114	104	55	53	138
Mexico	379	295	131	68	50	46	84
Lybia	512	294	108	69	81	36	218
Germany	453	264	130	44	61	29	189
Senegal	352	199	22	30	125	22	153
Other countries	8,663	4,453	1,323	612	2,102	416	4,210
Percent foreign	40.5	38.8	27.0	46.5	53.0	35.8	43.1

NOTE: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, and agricultural sciences.

SOURCE: Ministry of Education, Research, and Technology.

Appendix table 2-37.

Enrollment of foreign students at Japanese universities, by degree level, field, and country of origin: 1999

Country of origin	Total	Total S&E	Natural sciences	Agricultural sciences	Social and behavioral sciences	Engineering	Other
Undergraduate students							
Total	2,448,804	1,607,750	87,166	71,110	978,164	471,310	841,054
Foreign undergraduate	33,877	17,451	297	364	13,468	3,322	16,426
China	15,489	8,430	73	140	7,332	885	7,059
Korea	12,435	6,602	175	144	5,124	1,159	5,833
Malaysia	1,375	1,151	11	28	306	806	224
Thailand	355	159	8	9	83	59	196
Vietnam	229	129	5	4	71	49	100
Indonesia	257	122	4	5	51	62	135
United States	832	42	1	1	39	1	790
Brazil	161	42	3	6	14	19	119
Bangladesh	89	39	0	1	18	20	50
Australia	270	35	0	0	34	1	235
Percent foreign	1.4	1.1	0.3	0.5	1.4	0.7	2.0
Graduate students							
Total	191,125	128,896	18,855	18,798	25,076	66,167	62,229
Master's	132,118	101,407	12,557	14,759	19,313	54,778	30,711
Doctorate	59,007	27,489	6,298	4,039	5,763	11,389	31,518
Foreign graduate students	22,431	12,428	908	1,764	4,512	5,244	10,003
China	11,388	6,099	348	661	2,624	2,466	5,289
South Korea	4,409	2,160	137	224	939	860	2,249
Indonesia	842	663	60	174	88	341	179
Bangladesh	649	410	72	142	20	176	239
Thailand	632	423	12	88	97	226	209
Malaysia	290	216	6	19	90	101	74
Philippines	285	166	24	61	39	42	119
Vietnam	234	168	12	32	46	78	66
Sri Lanka	170	132	13	28	21	70	38
India	147	98	12	24	16	46	49
Percent foreign	11.74	9.64	4.82	9.38	17.99	7.93	16.07

NOTE: Natural sciences include physics, chemistry, astronomy, earth, atmospheric, ocean, and biological sciences.

SOURCE: Government of Japan, Ministry of Education, Culture and Sports, *Monbusho Survey of Education*, 1999 (Tokyo, 2000). unpublished tabulations.

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Appendix table 2-38.

Foreign graduate student enrollment in S&E fields, by country and field: 1998 or 1999

Country and citizenship	Total S&E	Natural sciences	Mathematics and computer sciences	Social and behavioral sciences	Engineering
United States					
All students	411,308	114,127	58,814	136,899	101,468
Foreign students ^a	109,904	27,442	23,077	17,968	41,417
Percent foreign	26.7	24.0	39.2	13.1	40.8
United Kingdom					
All students	116,451	40,557	19,399	27,682	28,813
Foreign students	36,631	9,952	4,753	11,102	10,824
Percent foreign	31.5	24.5	24.5	40.1	37.6
France					
All students	35,497	15,367	5,055	10,881	4,194
Foreign students ^b	9,319	2,830	1,741	3,661	1,087
Percent foreign	26.3	18.4	34.4	33.6	25.9
Japan					
All students	128,896	37,644	NA	25,076	66,167
Foreign students	12,428	2,672	NA	4,512	5,244
Percent foreign	9.6	7.1	NA	18.0	7.9

NA = not available

NOTES: Data for the United States and the United Kingdom are for 1999; data for Japan and France are for 1998.

^aIncludes those on temporary visas only.^bIncludes doctoral students only; data for other countries include all graduate students.

SOURCES: **United States**—National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Graduate Students and Postdoctorates in Science and Engineering Fall 1999*, NSF 01-315, (Arlington, VA, 2001); **United Kingdom**—Higher Education Statistics Agency (Cheltenham, 2001), unpublished tabulations; **France**—Ministry of Education, unpublished tabulations, 2001; **Japan**—Ministry of Education, Science and Culture, *Monbusho Survey of Education* (Tokyo, 2001) unpublished tabulations.

Appendix table 2-39.
Doctoral S&E degrees in selected Asian countries and economies, by field: 1975–99

Country/economy and field	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
China																										
Total	0	0	0	0	0	0	0	13	19	91	234	307	622	1,682	1,904	2,127	2,556	2,540	2,114	3,590	4,364	4,950	6,793	8,518	10,160	
Total S&E	0	0	0	0	0	0	0	NA	NA	NA	125	127	218	797	1,024	1,069	1,198	1,357	1,895	2,741	3,417	4,428	5,328	6,358	6,778	
Natural sciences	0	0	0	0	0	0	0	NA	NA	NA	33	27	52	165	141	209	252	304	528	918	1,191	1,479	1,678	2,246	2,135	
Math and computer sciences	0	0	0	0	0	0	0	NA	NA	NA	23	10	31	75	78	99	101	103	139	187	264	334	350	417		
Agricultural sciences	0	0	0	0	0	0	0	NA	NA	NA	1	0	8	55	56	20	37	68	92	125	182	256	328	416	444	
Social and behavioral sciences	0	0	0	0	0	0	0	NA	NA	NA	0	1	0	26	23	36	47	61	102	170	198	234	325	446	513	
Engineering	0	0	0	0	0	0	0	NA	NA	NA	68	89	127	476	726	715	767	823	1,069	1,389	1,659	2,195	2,643	2,900	3,269	
India																										
Total	2,015	2,337	2,710	3,144	3,646	4,229	4,904	5,688	6,597	6,934	7,139	7,346	7,603	7,598	8,284	8,586	8,374	8,383	8,720	9,923	9,070	10,397	10,408	10,408	NA	
Total S&E	1,909	2,143	2,408	2,600	2,917	3,061	3,356	3,600	3,886	4,162	3,976	4,052	4,123	4,208	4,209	4,166	4,212	4,183	4,021	4,565	4,000	5,015	4,764	4,764	NA	
Natural sciences	1,484	1,651	1,837	2,044	2,261	2,385	2,516	2,654	2,800	2,954	2,892	2,922	2,937	3,038	3,044	2,976	2,950	3,044	2,997	3,467	2,950	3,861	3,498	3,498	NA	
Math and computer sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA																
Agricultural sciences	289	317	348	422	480	483	558	566	575	698	575	576	583	576	579	583	633	688	701	769	715	780	968	968	NA	
Social and behavioral sciences	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA																
Engineering	136	174	223	134	176	193	282	380	511	510	509	554	603	594	586	607	629	451	323	329	335	374	298	298	NA	
Japan																										
Total	4,592	5,138	5,322	5,648	5,812	6,269	6,599	6,810	7,233	7,477	7,978	8,533	9,157	9,602	10,036	10,633	10,758	10,885	11,576	12,160	12,645	13,820	13,921	14,800	NA	
Total S&E	2,127	2,371	2,492	2,478	2,515	2,611	2,632	2,631	2,676	2,802	3,088	3,095	3,248	3,511	3,561	3,704	3,874	4,056	4,438	4,877	5,205	6,006	6,157	6,575	NA	
Natural sciences	676	717	843	782	814	822	791	762	774	807	860	820	837	881	876	835	863	892	1,009	1,132	1,182	1,243	1,315	1,481	NA	
Math and computer sciences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA	
Agricultural sciences	381	490	518	442	430	527	529	521	515	614	697	646	715	746	734	719	791	870	824	894	956	1,108	1,043	1,094	NA	
Social and behavioral sciences	84	85	88	88	76	76	76	93	97	90	127	136	149	167	177	183	191	200	243	241	276	358	388	420	NA	
Engineering	986	1,079	1,043	1,166	1,195	1,186	1,236	1,255	1,290	1,291	1,404	1,493	1,547	1,717	1,774	1,967	2,029	2,094	2,362	2,610	2,791	3,297	3,411	3,580	NA	
South Korea																										
Total	557	557	566	574	583	592	601	610	845	1,109	1,400	1,645	1,906	2,125	2,458	2,481	2,984	3,211	3,583	3,999	4,462	4,723	4,999	5,586	NA	
Total S&E	128	128	99	116	139	169	212	269	281	360	548	631	759	871	984	945	1,135	1,228	1,421	1,650	1,920	2,046	2,189	2,484	NA	
Natural sciences	29	29	22	30	41	55	75	102	83	124	212	201	277	207	192	170	225	202	244	296	358	391	427	375	NA	
Math and computer sciences	0	0	0	0	0	0	0	0	0	0	0	0	0	73	105	75	99	106	124	145	169	178	187	209	NA	
Agricultural sciences	48	48	40	43	45	48	52	55	60	77	89	105	110	155	175	154	156	151	172	196	223	199	178	180	NA	
Social and behavioral sciences	31	31	23	23	24	24	25	25	41	39	50	52	102	90	97	107	189	217	222	227	232	236	240	327	NA	
Engineering	20	20	14	20	29	42	60	87	97	120	197	273	270	346	415	439	466	552	659	786	938	1,042	1,157	1,393	NA	
Taiwan																										
Total	37	37	45	28	43	64	64	74	86	99	115	200	225	249	314	410	410	608	701	808	848	1,053	1,187	1,282	1,337	
Total S&E	21	21	24	17	26	30	49	44	58	85	109	172	197	197	257	312	370	450	513	592	650	783	839	907	892	
Natural sciences	2	2	4	7	4	6	8	5	8	14	20	22	35	35	42	47	62	82	97	115	115	154	163	172	150	
Math and computer sciences	0	0	0	0	1	1	1	3	4	2	4	13	14	18	24	32	42	45	49	55	63	88	93	119	NA	
Agricultural sciences	4	4	4	5	7	5	15	8	17	15	10	28	28	36	33	36	39	48	60	63	65	79	78	76	NA	
Social and behavioral sciences	7	7	13	2	6	8	10	13	15	23	16	26	22	22	41	43	31	23	36	56	44	66	76	87	65	
Engineering	8	8	3	3	8	10	15	15	14	31	59	83	98	98	120	165	209	264	287	312	373	435	433	477	482	
Summary, S&E doctoral degrees, by country																										
Total Asia	4,185	4,663	5,023	5,211	5,597	5,871	6,249	6,544	6,901	7,409	7,846	8,077	8,545	9,584	10,035	10,196	10,789	11,274	12,288	14,425	15,192	18,278	19,277	21,088	NA	
China	0	0	0	0	0	0	0	0	0	125	127	218	797	1,024	1,069	1,198	1,357	1,895	2,741	3,417	4,021	4,565	4,000	5,015	4,764	4,764
India	1,909	2,143	2,408	2,600	2,917	3,061	3,356	3,600	3,886	4,162	3,976	4,052	4,123	4,208	4,209	4,166	4,212	4,183	4,021	4,565	4,000	5,015	4,764	4,764	NA	
Japan	2,127	2,371	2,492	2,478	2,515	2,611	2,632	2,631	2,676	2,802	3,088	3,095	3,248	3,511	3,561	3,704	3,874	4,056	4,438	4,877	5,205	6,006	6,157	6,575	NA	
South Korea	128	128	99	116	139	169	212	269	281	360	548	631	759	871	984	945	1,135	1,228	1,421	1,650	1,920	2,046	2,189	2,484	NA	
Taiwan	21	21	24	17	26	30	49	44	58	85	109	172	197	197	257	312	370	450	513	592	650	783	839	907	892	

NA = Not available

NOTES: Japanese data include "thesis" doctorates, called *Ronbun Hakase*, earned by employees in industry. In Japanese higher education data, mathematics is included in natural sciences; computer science is included in engineering. Indian 1998 data are estimated. Natural sciences include physics, chemistry, astronomy, and biological, earth, atmospheric, and ocean sciences.

SOURCES: **China**—National Research Center for Science and Technology for Development; **India**—Department of Science and Technology, *Research and Development Statistics 1996–97* (New Delhi, 1999); **Japan**—Ministry of Education, Science, and Culture (Monbusho), *Monbusho Survey of Education* (Tokyo annual series); **South Korea**—Ministry of Education, *Statistical Yearbook of Education* (Seoul, 2000); **Taiwan**—Ministry of Education, *Educational Statistics of the Republic of China*: 2000 (Taipei, 2001).

Appendix table 2-40.
Doctoral S&E degrees in selected industrialized countries, by field: 1975–99

Field	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
France																										
Total	NA																									
Total S&E	NA																									
Natural sciences	NA																									
Math and computer sciences ...	NA	722	795	831	976	1,065	1,203	1,129	1,241	869	845	NA														
Agricultural sciences	NA	37	53	38	38	52	94	84	194	207	179	NA														
Social and behavioral sciences	NA	672	488	539	663	797	1,018	815	1,285	1,629	1,559	NA														
Engineering	NA	842	981	1,093	1,175	1,275	1,374	1,427	1,739	1,863	1,852	NA														
Non-S&E	NA	1,075	1,624	1,814	2,208	2,475	3,047	2,774	2,452	2,111	2,223	NA														
Germany																										
Total	11,418	11,531	11,386	11,755	11,939	12,222	12,283	12,963	13,637	14,133	14,951	15,530	16,064	17,321	17,901	22,372	22,462	21,438	22,000	22,000	22,387	22,849	24,174	24,890	24,545	
Total S&E	4,588	4,742	4,922	4,677	4,821	4,780	4,710	4,937	4,978	5,153	5,738	6,091	6,576	7,101	7,568	10,762	10,465	10,148	10,200	10,200	10,889	11,472	11,728	11,966	11,984	
Natural sciences	2,238	2,364	2,443	2,287	2,380	2,462	2,444	2,313	2,404	2,315	2,986	3,184	3,440	3,844	4,095	5,319	5,326	5,638	5,700	5,700	5,868	6,078	6,418	6,625	6,271	
Math and computer sciences ...	242	250	294	242	273	227	213	261	274	239	274	278	294	332	383	429	418	464	500	500	663	810	785	855	980	
Agricultural sciences	338	347	323	327	281	331	317	361	361	411	414	406	468	450	518	997	709	602	500	500	507	512	521	562	522	
Social and behavioral sciences	1,015	1,042	1,024	995	959	949	913	1,012	966	1,014	968	1,064	1,068	1,150	1,200	1,544	1,483	1,344	1,400	1,400	1,741	1,803	1,775	1,824	1,982	
Engineering	755	739	838	826	928	811	823	990	973	1,174	1,096	1,159	1,306	1,325	1,372	2,473	2,529	2,100	2,100	2,110	2,269	2,229	2,100	2,229		
Non-S&E	6,830	6,789	6,464	7,078	7,118	7,442	7,573	8,026	8,659	8,980	9,213	9,439	9,488	10,220	10,333	11,610	11,997	11,290	11,800	11,800	11,498	11,377	12,446	12,924	12,561	
United Kingdom																										
Total	5,341	5,210	5,331	5,601	5,700	5,804	5,983	6,333	6,528	6,291	6,208	6,492	6,835	7,588	7,845	8,242	8,387	8,396	8,717	9,000	7,557	9,761	10,214	10,993	11,338	
Total S&E	4,023	3,981	4,115	4,235	4,222	4,287	4,463	4,738	4,759	4,567	4,608	4,759	5,016	5,663	5,816	6,207	6,302	6,112	6,098	6,325	5,134	6,526	6,765	7,268	7,386	
Natural sciences	2,082	2,070	2,155	2,192	2,303	2,300	2,389	2,515	2,426	2,408	2,409	2,495	2,583	2,787	2,937	3,113	3,151	3,054	3,034	3,200	2,580	3,380	3,421	3,665	3,668	
Math and computer sciences ...	242	264	282	277	273	256	311	296	289	290	282	290	321	374	415	471	535	519	528	600	454	602	586	565	680	
Agricultural sciences	209	167	208	194	185	176	195	190	183	223	159	260	192	244	238	241	248	279	275	325	271	351	324	392	326	
Social and behavioral sciences	431	475	513	539	495	532	541	603	663	657	687	686	732	899	878	916	914	935	739	700	502	636	679	809	907	
Engineering	1,059	1,005	957	1,033	966	1,023	1,027	1,134	1,198	989	1,071	1,028	1,188	1,359	1,348	1,466	1,454	1,325	1,522	1,500	1,327	1,557	1,755	1,837	1,805	
Non-S&E	1,318	1,229	1,216	1,366	1,478	1,517	1,520	1,595	1,769	1,724	1,600	1,733	1,819	1,925	2,029	2,035	2,085	2,284	2,619	2,675	2,423	3,235	3,449	3,725	3,952	
United States																										
Total	32,952	32,946	31,716	30,875	31,239	31,020	31,356	31,111	31,282	31,337	31,297	31,902	32,370	33,500	34,327	36,067	37,534	38,890	39,801	41,034	41,743	42,414	42,555	42,683	41,140	
Total S&E	18,799	18,124	18,008	17,216	17,872	17,775	18,257	17,892	18,635	18,103	18,935	19,437	19,894	20,932	21,731	22,868	24,023	24,675	25,443	26,205	26,535	27,229	27,245	27,309	25,953	
Natural sciences	7,364	6,814	6,993	6,431	7,096	7128	7179	7014	7261	6740	7440	7535	7801	8239	8220	8589	9086	9372	9561	10001	9988	10354	10432	10497	9989	
Math/computer sciences	1,360	1,003	964	959	979	962	960	940	987	993	998	1,128	1,190	1,264	1,471	1,597	1,839	1,927	2,026	2,021	2,187	2,043	2,035	2,102	1,935	
Agricultural sciences	739	701	683	733	721	736	816	798	933	951	996	948	854	933	965	1,174	1,073	1,063	968	1,078	1,036	1,037	982	1037	965	
Social and behavioral sciences	6,538	6,768	6,720	6,668	6,582	6,470	6,774	6,494	6,672	6,506	6,335	6,450	6,337	6,310	6,532	6,613	6,806	6,873	7,190	7,280	7,307	7,490	7,682	7,743	7,727	
Engineering	3,011	2,838	2,648	2,425	2,494	2,479	2,528	2,646	2,781	2,913	3,166	3,376	3,712	4,187	4,543	4,894	5,214	5,438	5,698	5,822	6,008	6,305	6,114	5930	5337	
Non-S&E	14,153	14,822	13,708	13,659	13,367	13,245	13,099	13,219	12,647	13,234	12,362	12,465	12,476	12,568	12,596	13,199	13,511	14,215	14,358	14,829	15,208	15,185	15,310	15,374	15,187	
Summary																										
Total S&E	27,410	26,847	27,045	26,128	26,915	26,842	27,430	27,567	28,372	27,823	29,281	30,287	31,486	33,696	40,003	44,995	46,174	47,312	48,561	50,285	49,585	53,738	54,700	54,902	NA	
France	NA																									
Germany	4,588	4,742	4,922	4,677	4,821	4,780	4,710	4,937	4,978	5,153	5,738	6,091	6,576	7,101	7,568	10,762	10,465	10,148	10,200	10,200	10,889	11,472	11,728	11,966	11,984	
United Kingdom	4,023	3,981	4,115	4,235	4,222	4,287	4,463	4,738	4,759	4,567	4,608	4,759	5,016	5,663	5,816	6,207	6,302	6,112	6,098	6,325	5,134	6,526	6,765	7,268	7,386	
United States	18,799	18,124	18,008	17,216	17,872	17,775	18,257	17,892	18,635	18,103	18,935	19,437	19,894	20,932	21,731	22,868	24,023	24,675	25,443	26,205	26,535	27,229	27,245	27,309	25,953	

NA = not available

NOTES: French doctoral degrees are not available in the same data series before 1989. German doctoral degrees include those of former East Germany from 1990 on. Natural sciences include physics, chemistry, astronomy, and biological, earth, atmospheric, and ocean sciences.

SOURCES: France—Ministère de l'Éducation Nationale, de la Recherche et de la Technologie, *Rapport sur les Études Doctorales* (Paris, 2000); Germany—Statistisches Bundesamt, *Prüfungen an Hochschulen* (Wiesbaden, 2000); United Kingdom—Higher Education Statistics Agency (Cheltenham, 2001); United States—National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Doctorate Awards: 1999*, NSF01-314 (Arlington, VA, 2001).

Appendix table 2-41.

Doctoral S&E degrees earned by Asian students at their place of origin and at U.S. universities: 1975–99

Place of origin and location of doctoral university	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Chinese students																									
Chinese universities	NA	125	127	218	797	1,024	1,069	1,198	1,357	1,895	2,741	3,417	4,428	5,328	6,775	7,393									
U.S. universities	NA	293	480	620	1,150	1,793	2,045	2,227	2,531	2,752	2,952	2,223	2,378	2,188											
South Korean students																									
South Korean universities	128	128	99	116	139	169	212	269	281	360	548	631	759	871	984	945	1,135	1,228	1,421	1,650	1,920	2,046	2,189	2,260	NA
U.S. universities	NA	NA	NA	NA	NA	NA	135	172	236	266	323	398	547	620	753	979	1,114	1,127	1,123	1,150	1,005	979	818	780	739
Japanese students																									
Japanese universities	2,127	2,371	2,492	2,478	2,515	2,611	2,632	2,631	2,676	2,802	3,088	3,095	3,248	3,511	3,561	3,704	3,873	4,056	4,438	4,877	5,205	6,006	6,157	6,575	NA
U.S. universities	NA	NA	NA	NA	NA	NA	77	88	103	102	97	74	80	72	106	147	125	132	132	182	155	167	149	152	156
Taiwanese students																									
Taiwan universities	21	21	24	17	26	30	49	44	58	85	109	172	197	197	257	312	370	450	514	592	650	783	839	907	892
U.S. universities	NA	NA	NA	NA	NA	NA	444	560	604	664	743	707	787	786	857	1,012	1,127	1,242	1,213	1,301	1,240	1,149	995	871	734

NA = not available

NOTES: Japanese data include "thesis" doctorates, called *Ronbun Hakase*, earned by employees in industry.

SOURCES: **China**—National Research Center for Science and Technology for Development; **Japan**—Ministry of Education, Science, and Culture (Monbusho), *Monbusho Survey of Education* (Tokyo annual series); **South Korea**—Ministry of Education, *Statistical Yearbook of Education* (Seoul, 2000); **Taiwan**—Ministry of Education, *Educational Statistics of the Republic of China*: 2000 (Taipei, 2001); **United States**—National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Doctorate Awards: 1999*, NSF 01-314 (Arlington, VA, 2001).

Science & Engineering Indicators – 2002

Appendix table 2-42.

Earned S&E doctoral degrees in selected regions and locations: 1999 or latest available year

Region/location	All doctoral degrees	All S&E doctoral degrees	Field					
			Natural sciences	Math and computer sciences	Agriculture	Social and behavioral sciences	Engineering	Non-S&E
TOTAL	189,850	108,712	44,418	7,213	7,977	19,322	29,782	81,138
Asia								
Total	42,291	21,493	7,639	745	2,762	1,325	9,022	20,798
China	10,160	6,778	2,135	417	444	513	3,269	3,382
India	10,408	4,764	3,498	NA	968	NA	298	5,644
Japan ^a	14,800	6,575	1,481	NA	1,094	420	3,580	8,225
South Korea	5,586	2,484	375	209	180	327	1,393	3,102
Taiwan	1,337	892	150	119	76	65	482	445
Middle East								
Israel	745	566	307	51	38	67	103	179
Europe								
Total	94,257	53,539	23,477	3,982	3,340	8,963	13,777	40,718
European Union	68,141	39,021	18,099	3,731	2,022	6,051	9,118	29,120
Austria	1,843	812	286	69	33	119	305	1,031
Belgium	670	415	199	16	66	27	107	255
Denmark	899	559	181	27	66	104	181	340
Finland	1,708	918	254	77	40	235	312	790
France	10,582	8,359	3,924	845	179	1,559	1,852	2,223
Germany	24,545	11,984	6,271	980	522	1,982	2,229	12,561
Greece	932	367	128	44	36	66	93	565
Ireland	449	310	227	15	7	15	46	139
Italy	3,463	1,643	770	22	156	85	610	1,820
Netherlands	2,490	1,394	0	481	206	257	450	1,096
Portugal	566	494	172	NA	22	184	116	72
Spain	5,931	2,625	1,517	253	245	229	381	3,306
Sweden	2,725	1,755	502	222	118	282	631	970
United Kingdom	11,338	7,386	3,668	680	326	907	1,805	3,952
European Free Trade Association	3,521	1,754	912	144	138	182	378	1,767
Norway	695	416	151	28	28	88	121	279
Switzerland	2,826	1,338	761	116	110	94	257	1,488
Central/Eastern Europe	22,595	12,764	4,466	107	1,180	2,730	4,281	9,831
Czech Republic	752	507	191	33	81	36	166	245
Hungary	1,205	669	358	NA	78	69	164	536
Russia	18,274	10,409	3,567	NA	676	2,415	3,751	7,865
Turkey	2,364	1,179	350	74	345	210	200	1,185
The Americas								
Total	49,286	31,310	12,179	2,247	1,655	8,747	6,482	17,976
North America	45,217	28,702	10,988	2,154	1,182	8,430	5,948	16,515
Canada	3,347	2,251	763	204	178	562	544	1,096
Mexico	730	498	236	15	39	141	67	232
United States	41,140	25,953	9,989	1,935	965	7,727	5,337	15,187
South America	4,069	2,608	1,191	93	473	317	534	1,461
Argentina	408	382	218	8	97	18	41	26
Brazil	3,604	2,176	924	85	376	299	492	1,428
Chile	57	50	49	NA	0	0	1	7
Oceania								
Australia	3,271	1,804	816	188	182	220	398	1,467

NA = not available

^aJapanese data include "thesis" doctorates called *Ronbun Hakase*, earned by employees in industry.

NOTES: Data are compiled from numerous national and international sources, and degree fields may not be strictly comparable. Data for Austria, China, Denmark, France, Germany, Norway, Taiwan, United Kingdom, and United States are for 1999. Data for Australia, Belgium, Canada, Czech Republic, Finland, Hungary, Ireland, Israel, Italy, Japan, South Korea, Mexico, the Netherlands, Portugal, Russia, Spain, Sweden, Switzerland, and Turkey are for 1998. Data for Argentina and Chile are for 1996. Data for Greece are for 1994. Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, and biological sciences.

SOURCES: **ASIA:** **China**—National Research Center for Science and Technology for Development, unpublished tabulations; **India**—Department of Science and Technology, *Research and Development Statistics 1996–97* (New Delhi, 1999); **Japan**—Ministry of Education, Science, and Culture (Monbusho), *Monbusho Survey of Education* (Tokyo); **South Korea**—Organisation for Economic Co-operation and Development, Center for Educational Research and Innovation, *Education At a Glance* (OECD, 2000); **Taiwan**—Ministry of Education, *Educational Statistics of the Republic of China: 2000* (Taipei, 2001); **EUROPEAN UNION: Austria**—OECD; **Belgium**—OECD; **Denmark**—Danish Research Agency: <www.forak.dk>; **Finland**—OECD; **France**—Ministère de l'Éducation Nationale de la Recherche et de la Technologie, *Rapport sur les Études Doctorales* (Paris, 2000); **Germany**—Statistisches Bundesamt, *Prüfungen an Hochschulen* (Wiesbaden, 2000); **Greece**—OECD; **Ireland**—OECD; **Italy**—OECD; **Netherlands**—OECD;

Appendix table 2-42.

Earned S&E doctoral degrees in selected regions and locations: 1999 or latest available year

Portugal—Red Iberoamericana de Indicadores de Ciencia y Tecnología (RICYT), *Principales Indicadores de Ciencia y Tecnología* (Buenos Aires, 1999); **Spain**—OECD; **Sweden**—OECD; **United Kingdom**—Higher Education Statistics Agency (Cheltenham, 2001), unpublished tabulations; **EUROPEAN FREE TRADE ASSOCIATION: Norway**—Institute for Studies in Research and Higher Education, the Norwegian Research Council, unpublished tabulations (2000); **Switzerland**—OECD; **CENTRAL/EASTERN EUROPE: Czech Republic**—OECD; **Hungary**—OECD; **Russia**—Center for Science Research and Statistics (CSRS), unpublished tabulations (2001); **Turkey**—OECD; **THE AMERICAS: Argentina**—(RICYT), *Principales Indicadores de Ciencia y Tecnología* (Buenos Aires, 1999); **Brazil**—Ministerio de Educacao e Cultura, Coordenacao de Aperfeicoamento de Pessoal de Nivel Superior (CAPES), unpublished tabulations, 2001; **Canada**—OECD; **Chile**—RICYT, *Principales Indicadores de Ciencia y Tecnología* (Buenos Aires, 1999); **Mexico**—Asociación Nacional de Universidades e Instituciones de Educación Superior, *Anuario Estadístico 1999 Población Escolar de Posgrado* (Mexico, 2000); and **United States**—National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Doctorate Awards: 1999*, NSF 01-314 (Arlington, VA, 2001).

Appendix table 2-43.

Earned S&E doctoral degrees in selected regions and locations, by sex and field: 1999 or most recent year

Region/location	Fields																	
	All doctoral degrees		All S&E doctoral degrees		Natural sciences		Math and computer sciences		Agriculture		Social and behavioral sciences		Engineering		Non S&E			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Male																		
Asia																		
Total	13,090	82.3	7,151	89.5	1,365	86.9	327	80.5	810	83.1	769	78.9	3,880	95.6	5,939	74.9		
China	NA	NA	5,380	85.9	1,765	82.7	372	89.2	362	81.5	NA	NA	2,881	88.1	NA	NA		
Japan ^a	9,827	80.6	5,271	90.3	1,085	87.1	144	90.0	1,098	91.7	176	72.7	2,768	92.6	4,556	71.7		
South Korea	4,008	80.2	1,904	84.3	341	81.0	129	69.0	192	90.6	129	80.6	1,113	87.1	2,104	76.8		
Taiwan	1,112	83.2	795	89.1	120	80.0	106	89.1	55	72.4	50	76.9	464	96.3	317	71.2		
Middle East																		
Israel	437	58.7	354	62.5	172	56.0	42	82.4	21	55.3	36	53.7	83	80.6	83	46.4		
Europe																		
Total	30,388	65.7	19,991	71.7	9,642	66.8	1,777	80.1	634	62.4	2,837	67.2	5,101	85.1	10,397	56.6		
Belgium	448	66.9	289	69.6	125	62.8	11	68.8	40	60.6	17	63.0	96	89.7	159	62.4		
Czech Republic	550	73.1	392	77.3	141	73.8	28	84.8	60	74.1	23	63.9	140	84.3	158	64.5		
Denmark	571	63.5	395	70.7	136	75.1	23	85.2	34	51.5	60	57.7	142	78.5	176	51.8		
Finland	1,027	60.1	634	69.1	163	64.2	66	85.7	30	75.0	126	53.6	249	79.8	393	49.7		
France	6,743	60.9	5,825	65.0	2,573	58.6	670	77.1	101	48.8	1,038	63.7	1,443	77.5	918	43.5		
Germany	16,356	66.6	9,137	76.2	4,510	71.9	801	81.7	347	66.5	1,406	70.9	2,073	93.0	7,219	57.5		
Hungary	720	59.8	401	59.9	213	59.5	0	NA	48	61.5	42	60.9	98	59.8	319	59.5		
Ireland	267	59.5	185	59.7	124	54.6	12	80.0	5	71.4	11	73.3	33	71.7	82	59.0		
Italy	1,897	54.8	799	48.6	246	31.9	10	45.5	92	59.0	42	49.4	409	67.0	1,098	60.3		
Netherlands	1,807	72.6	1,071	76.8	367	76.3	0	NA	146	70.9	153	59.5	405	90.0	736	67.2		
Russia	11,309	61.9	7,156	68.7	2,241	62.8	NA	460	68.0	1,364	56.5	3,091	82.4	4,153	52.8			
Spain	3,440	58.0	1,554	59.2	827	54.5	166	65.6	140	57.1	116	50.7	305	80.1	1,886	57.0		
Sweden	1,850	67.9	1,302	74.2	356	70.9	185	83.3	76	64.4	190	67.4	495	78.4	548	56.5		
Switzerland	1,978	70.0	1,005	75.1	557	73.2	98	84.5	56	50.9	60	63.8	234	91.1	973	65.4		
Turkey	1,556	65.8	812	68.9	224	64.0	55	74.3	245	71.0	134	63.8	154	77.0	744	62.8		
United Kingdom	7,241	65.9	5,034	70.6	2,311	63.8	456	80.7	197	68.4	513	62.9	1,557	84.8	2,207	57.1		
The Americas																		
Total	28,359	59.9	19,847	67.4	7,207	66.0	1,781	80.4	883	71.7	4,047	48.6	5,929	87.9	8,245	47.5		
Canada	2,232	66.7	1,655	73.5	592	77.6	175	85.8	124	69.7	270	48.0	494	90.8	577	52.6		
Mexico	438	60.0	610	65.5	129	61.4	15	100.0	33	84.6	78	55.3	54	80.6	129	50.0		
United States	23,647	57.5	31	65.0	6,548	65.6	1,502	77.6	685	71.0	3,588	46.4	4,546	85.2	6,778	44.6		
Oceania																		
Australia	2,060	63.0	1,288	71.4	549	67.3	152	80.9	110	60.4	127	57.7	350	87.9	772	100.0		
Female																		
Asia																		
Total	2,822	17.7	835	10.5	205	13.1	79	19.5	165	16.9	206	21.1	180	4.4	1,987	25.1		
China	NA	NA	885	14.1	370	17.3	45	10.8	82	18.5	NA	NA	388	11.9	NA	NA		
Japan ^a	2,365	19.4	564	9.7	161	12.9	16	10.0	99	8.3	66	27.3	222	7.4	1,801	28.3		
South Korea	991	19.8	354	15.7	80	19.0	58	31.0	20	9.4	31	19.4	165	12.9	637	23.2		
Taiwan	225	16.8	97	10.9	30	20.0	13	10.9	21	27.6	15	23.1	18	3.7	128	28.8		
Middle East																		
Israel	308	41.3	212	37.5	135	44.0	9	17.6	17	44.7	31	46.3	20	19.4	96	53.6		

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 2-43.

Earned S&E doctoral degrees in selected regions and locations, by sex and field: 1999 or most recent year

Region/location	Fields															
	All doctoral degrees		All S&E doctoral degrees		Natural sciences		Math and computer sciences		Agriculture		Social and behavioral sciences		Engineering		Non S&E	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Female																
Europe																
Total	15,852	34.3	7,892	28.3	4,795	33.2	442	19.9	382	37.6	1,382	32.8	891	14.9	7,960	43.4
Belgium	222	33.1	126	30.4	74	37.2	5	31.3	26	39.4	10	37.0	11	10.3	96	37.6
Czech Republic	202	26.9	115	22.7	50	26.2	5	15.2	21	25.9	13	36.1	26	15.7	87	35.5
Denmark	328	36.5	164	29.3	45	24.9	4	14.8	32	48.5	44	42.3	39	21.5	164	48.2
Finland	681	39.9	284	30.9	91	35.8	11	14.3	10	25.0	109	46.4	63	20.2	397	50.3
France	4,330	39.1	3,137	35.0	1,821	41.4	199	22.9	106	51.2	591	36.3	420	22.5	1,193	56.5
Germany	8,186	33.4	2,847	23.8	1,761	28.1	179	18.3	175	33.5	576	29.1	156	7.0	5,339	42.5
Hungary	485	40.2	268	40.1	145	40.5	0	NA	30	38.5	27	39.1	66	40.2	217	40.5
Ireland	182	40.5	125	40.3	103	45.4	3	20.0	2	28.6	4	26.7	13	28.3	57	41.0
Italy	1,566	45.2	844	51.4	524	68.1	12	54.5	64	41.0	43	50.6	201	33.0	722	39.7
Netherlands	683	27.4	323	23.2	114	23.7	0	NA	60	29.1	104	40.5	45	10.0	360	32.8
Russia	6,965	38.1	3,253	31.3	1,326	37.2	NA	216	32.0	1,051	43.5	660	17.6	3,712	47.2	
Spain	2,491	42.0	1,071	40.8	690	45.5	87	34.4	105	42.9	113	49.3	76	19.9	1,420	43.0
Sweden	875	32.1	453	25.8	146	29.1	37	16.7	42	35.6	92	32.6	136	21.6	422	43.5
Switzerland	848	30.0	333	24.9	204	26.8	18	15.5	54	49.1	34	36.2	23	8.9	515	34.6
Turkey	808	34.2	367	31.1	126	36.0	19	25.7	100	29.0	76	36.2	46	23.0	441	37.2
United Kingdom	3,752	34.1	2,097	29.4	1,314	36.2	109	19.3	91	31.6	303	37.1	280	15.2	1,655	42.9
The Americas																
Total	18,994	40.1	9,579	32.6	3,709	34.0	435	19.6	348	28.3	4,272	51.4	815	12.1	9,415	52.5
Canada	1,115	33.3	596	26.5	171	22.4	29	14.2	54	30.3	292	52.0	50	9.2	519	47.4
Mexico	292	40.0	163	34.5	81	38.6	0	0.0	6	15.4	63	44.7	13	19.4	129	50.0
United States	17,493	42.5	9,084	35.0	3,441	34.4	433	22.4	280	29.0	4,139	53.6	791	14.8	8,409	55.4
Oceania																
Australia	1,211	37.0	516	28.6	267	32.7	36	19.1	72	39.6	93	42.3	48	12.1	0.0	

NA = not available

^aJapanese data are for university-based doctoral degrees only; degrees earned within industry (*Ronbun Hakase*) are not included.

NOTES: Data are compiled from numerous national and international sources, and degree fields may not be strictly comparable. Data for China, France, Germany, Japan, Norway, Taiwan, United Kingdom, and United States are for 1999. French and South Korean data are for 1997. Data for all other locations are for 1998. Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, and biological sciences.

SOURCES: **ASIA: China**—National Research Center for Science and Technology for Development, unpublished tabulations; **Japan**—Ministry of Education, Science, and Culture (Monbusho), *Monbusho Survey of Education* (Tokyo); **South Korea**—OECD; **Taiwan**—Ministry of Education, *Educational Statistics of the Republic of China: 2000* (Taipei, 2001); **EUROPE: Belgium**—OECD; **Czech Republic**—OECD; **Denmark**—Danish Research Agency: <www.forak.dk>; **Finland**—OECD; **France**—Ministère de l'Éducation Nationale de la Recherche et de la Technologie, *Rapport sur les Études Doctorales* (Paris, 2000); **Germany**—Statistisches Bundesamt, *Prüfungen an Hochschulen* (Wiesbaden, 2000); **Hungary**—OECD; **Ireland**—OECD; **Italy**—OECD; **Netherlands**—OECD; **Russia**—Center for Science Research and Statistics (CSRS), unpublished tabulations (2001); **Spain**—OECD; **Sweden**—OECD; **Switzerland**—OECD; **Turkey**—OECD; **United Kingdom**—Higher Education Statistics Agency (Cheltenham, 2001), unpublished tabulations; **THE AMERICAS: Canada**—Asociación de Universidades y Colegios de Canadá, unpublished tabulations (2000); **Mexico**—Asociación Nacional de Universidades e Instituciones de Educación Superior, *Anuario Estadístico 1999 Población Escolar de Posgrado* (Mexico, 2000); and **United States**—National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Doctorate Awards: 1999*, NSF 01-314 (Arlington, VA, 2001).

Appendix table 2-44.

Doctoral S&E degrees earned by foreign students in the United Kingdom, by field and top 10 locations of origin: 1995 and 1999

Country	Total S&E	Natural sciences	Math and computer sciences	Agricultural sciences	Social and behavioral sciences	Engineering
1995						
Total S&E degrees	5,134	2,580	454	271	502	1,327
Total foreign	1,781	609	171	142	253	606
China	185	47	15	10	7	106
United States	66	23	5	2	28	8
Greece	83	27	8	8	15	25
Malaysia	89	23	7	10	10	39
Canada	54	21	1	2	22	8
Brazil	88	33	17	10	4	24
Germany	64	34	7	4	3	16
India	58	20	4	7	9	18
Taiwan	61	17	4	0	3	37
Ireland	48	33	0	1	4	10
Other locations	985	331	103	88	148	315
Percent foreign	34.7	23.6	37.7	52.4	50.4	45.7
1999						
Total S&E degrees	7,386	3,668	680	326	907	1,805
Total foreign	2,469	859	258	162	397	793
Germany	174	72	27	4	30	41
Greece	130	49	20	12	16	33
United States	88	39	5	0	34	10
Malaysia	119	36	15	9	5	54
China	161	55	10	2	5	89
Iran	117	27	4	14	13	59
Turkey	95	18	12	11	12	42
Italy	94	32	7	0	35	20
Canada	57	23	0	1	23	10
Taiwan	70	27	5	2	10	26
Other locations	1,364	481	153	107	214	409
Percent foreign	33.4	23.4	37.9	49.7	43.8	43.9

NOTE: Natural sciences include physics, chemistry, astronomy, earth, atmospheric, ocean, and biological sciences.

SOURCE: Higher Education Statistics Agency (Cheltenham, 2001), unpublished tabulations.

Appendix table 2-45.

Doctoral S&E degrees earned by foreign students in selected industrialized countries: 1998 or 1999

Country and field	Total	Foreign	Percent foreign
France (1998)			
Total	10,582	2,622	24.8
Total S&E	7,772	1,784	23.0
Natural sciences	3,924	672	17.1
Mathematics/computer sciences ...	845	262	31.0
Agricultural sciences	179	37	20.7
Social and behavioral sciences ...	972	262	27.0
Engineering	1,852	551	29.8
Non-S&E	2,810	838	29.8
Germany (1999)			
Total	24,545	1,739	7.1
Total S&E	11,984	991	8.3
Natural sciences	6,271	461	7.4
Mathematics/computer sciences ...	980	85	8.7
Agricultural sciences	522	100	19.2
Social and behavioral sciences ...	1,982	124	6.3
Engineering	2,229	221	9.9
Non-S&E	12,561	748	6.0
Japan (1998)			
Total	8,543	NA	NA
Total S&E	4,436	1,169	26.4
Natural sciences	1,163	NA	NA
Mathematics/computer sciences ...	NA	NA	NA
Agricultural sciences	694	NA	NA
Social and behavioral sciences ...	229	NA	NA
Engineering	2,350	NA	NA
Non-S&E	4,107	NA	NA
United Kingdom (1999)			
Total	NA	NA	NA
Total S&E	7,386	2,469	33.4
Natural sciences	3,668	859	23.4
Mathematics/computer sciences ...	680	258	37.9
Agricultural sciences	325	162	49.7
Social and behavioral sciences ...	907	397	43.8
Engineering	1,805	793	43.9
Non-S&E	NA	NA	NA
United States (1999)			
Total	41,140	11,368	27.6
Total S&E	25,953	8,886	34.2
Natural sciences	9,989	3,413	34.2
Mathematics/computer sciences ...	1,935	912	47.1
Agricultural sciences	965	510	52.8
Social and behavioral sciences ...	7,727	1,459	18.9
Engineering	5,337	2,592	48.6
Non-S&E	15,187	2,482	16.3

NA = not available

NOTES: Foreign students in the United States include those on permanent and temporary visas. Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, and biological sciences.

SOURCES: **France**—Ministère de l'Éducation Nationale, de la Recherche et de la Technologie, *Rapport sur les Études Doctorales*, (Paris, 2000) and unpublished tabulations; **Germany**—Statistisches Bundesamt Wiesbaden, *Prüfungen an Hochschulen 1999* (Wiesbaden, 2000); **Japan**—Ministry of Education, Science and Culture (Monbusho), *Monbusho Survey of Education* (Tokyo); **United Kingdom**—Higher Education Statistics Agency, (Cheltenham, 2001) unpublished tabulations; **United States**—National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Science and Engineering Doctorate Awards: 1999*, NSF 01-314 (Arlington, VA, 2001) and Survey of Earned Doctorates, unpublished tabulations.

Appendix table 3-1.
SESTAT degree field and occupational category

Field	Occupation
S&E	
Computer and mathematical sciences	Computer and mathematical scientists
Computer and information sciences	Computer and information scientists
Computer and information sciences	Computer engineers—software
Computer sciences	Computer scientists, except systems analysts
Computer systems analysis	Computer systems analysts
Information services and systems	Information systems scientists and analysts
Other	Other computer and information science occupations
Mathematical sciences	Mathematical scientists
Applied mathematics	Mathematicians
General	Operations research analysts, modeling
Operations research	Statisticians
Statistics	Other mathematical scientists
Other	Postsecondary teachers
	Computer sciences
	Mathematics
Life and related sciences	Life scientists
Agricultural and food sciences	Agricultural and food scientists
Animal sciences	Biological scientists
Food sciences and technology	Biochemists and biophysicists
Plant sciences	Biological scientists
Other agricultural sciences	Medical scientists, except practitioners
Biological sciences	Other biological and life scientists
Biochemistry and biophysics	Environmental life scientists
Biology	Forestry and conservation scientists
Botany	Postsecondary teachers
Cell and molecular biology	Agriculture
Ecology	Biological sciences
Genetics, plant and animal	Medical sciences
Microbiology	Other natural sciences
Nutritional science	
Pharmacology, human and animal	
Physiology, human and animal	
Zoology	
Other	
Health and related sciences (included under life sciences for doctoral programs only)	
Audiology and speech pathology	
Health services administration	
Health and medical assistants	
Health and medical technologies	
Medical preparatory programs	
Medicine	
Nursing, four years or longer	
Pharmacy	
Physical therapy and other rehabilitation	
Public health, including environment	
Other	
Environmental life sciences	
Environmental science studies	
Forestry services	

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-1.
SESTAT degree field and occupational category

Field	Occupation
Physical and related sciences	Physical scientists
Chemistry, except biochemistry	Chemists, except biochemists
Earth science, geology, and oceanography	Earth scientists, geologists, and oceanographers
Atmospheric sciences and meteorology	Atmospheric and space scientists
Earth sciences	Geologists
Geology	Oceanographers
Other geological sciences	Physicists and astronomers
Oceanography	Astronomers
Physics and astronomy	Physicists
Physics	Other physical and related scientists
Astronomy and astrophysics	Postsecondary teachers
Other physical and related sciences	Chemistry
	Physics
	Earth, environmental, and marine science
Social and related sciences	Social scientists
Economics	Economists
Agricultural economics	Political and related scientists
Economics	Psychologists
Political and related sciences	Sociologists and anthropologists
Public policy studies	Anthropologists
International relations	Sociologists
Political science and government	Other social and related scientists
Psychology	Historians, science and technology
Educational	Other social scientists
Clinical	Postsecondary teachers
Counseling	Economics
Experimental	Political science
General	Psychology
Industrial and organizational	Sociology
Social	Other social sciences
Other	
Sociology and anthropology	
Anthropology and archaeology	
Criminology	
Sociology	
Area and ethnic studies	
Linguistics	
Philosophy of science	
Geography	
History of science	
Other social sciences	

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-1.
SESTAT degree field and occupational category

Field	Occupation
Engineering	Engineers
Aerospace and related engineering	Aerospace and related engineers
Aerospace, aeronautical, and astronautical	Architectural and civil engineers
Architectural and civil engineering	Civil engineers
Architectural	Chemical engineers
Civil	Electrical and related engineers
Chemical engineering	Computer engineers—hardware
Electrical and related engineering	Electrical and electronics engineers
Computer and systems	Industrial engineers
Electrical, electronics, and communications	Mechanical engineers
Industrial engineering	Other engineers
Mechanical engineering	Agricultural engineers
Other engineering	Bioengineers and biomedical engineers
Agricultural	Environmental engineers
Bioengineering and biomedical	Marine engineers or naval architects
Engineering sciences, mechanics and physics	Materials and metallurgical engineers
Environmental	Mining and geological engineers
General	Nuclear engineers
Geophysical	Petroleum engineers
Materials, including ceramics and textiles	Sales engineers
Metallurgical	Other
Mining and minerals	Postsecondary teachers
Naval architecture and marine	Engineering
Nuclear	
Petroleum	
Other	

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-1.
SESTAT degree field and occupational category

Field	Occupation
Non-S&E	
Management and administration	Managers and administrators
Agricultural business and production	Top and mid-level managers, executives, and administrators
Accounting	Accountants, auditors, and other financial specialists
Business administration and management	Personnel, training, and labor relations specialists
Business, general	Other management related occupations
Business and managerial economics	
Financial management	
Other business management/administrative services	
Health and related (included in non-S&E for bachelor's and master's programs only)	Health-related occupations
Audiology and speech pathology	Diagnosing and treating health practitioners
Health services administration	Registered nurses, pharmacists, dieticians, therapists, etc.
Health and medical assistance	Health technologists and technicians
Health and medical technologies	Other
Medical preparatory programs	
Medicine nursing, four years or longer	
Pharmacy	
Physical therapy and other rehabilitation	
Public health, including environment	
Other health and medical sciences	
Teaching and education	Teachers, except S&E postsecondary teachers
Education administration	Prekindergarten and kindergarten
Computer teacher education	Elementary school
Counselor education and guidance	Secondary: computer, math, or sciences
Elementary teacher education	Secondary: social sciences
Mathematics teacher education	Secondary: other subjects
Physical education and coaching	Special education
Pre-elementary teacher education	Other precollegiate education
Science teacher education	Postsecondary teachers
Secondary teacher education	Art, drama, and music
Special education	Business, commerce, and marketing
Social science teacher education	Education
Other education	English
	Foreign language
	History
	Home economics
	Law
	Physical education
	Social work
	Theology
	Trade and industrial
	Other health specialties
	Other
Social service and related disciplines	Social services and related occupations
Social work	Clergy and other religious workers
Other philosophy, religion, theology	Counselors, educational and vocational
	Social workers

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-1.
SESTAT degree field and occupational category

Field	Occupation
Technology and technical disciplines Computer programming Data processing technology Electrical and electronics technologies Industrial production technologies Mechanical engineering-related technologies Other engineering-related technologies	Technologists and technicians Computer programmers Electrical, electronics, industrial, and mechanical engineering technicians Drafting occupations Surveying and mapping engineering technicians Other engineering technologists and technicians Surveyors Technologists and technicians in biological and life sciences Technologists and technicians in mathematical sciences Technologists and technicians in physical sciences
Sales and marketing Business marketing/marketing management Marketing research	Sales and marketing Insurance, securities, real estate, and business services Commodities, except retail Retail Other
Arts, humanities, and related disciplines English language, literature, and letters Other foreign languages and literature Liberal arts and general studies History Dramatic arts Fine arts Music Other visual and performing arts	Art, humanities, and related occupations Artists, editors, entertainers, public relations, and writers Historians, except science and technology
Other non-S&E Architecture and environmental design Other conservation, renewable natural resources Actuarial science Communications Journalism Other communications Criminal justice and protective services Home economics Law, prelaw, legal studies Library science Parks, recreation, leisure, and fitness studies Public administration Other public affairs Other	Other Accounting clerks and bookkeepers Secretaries, receptionists, and typists Other administrative Architects Farmers, foresters, and fishermen Lawyers and judges Librarians, archivists, and curators Actuaries Food preparation and service workers Protective service workers Other service occupations, except health Construction trades, miners, and well drillers Mechanics and repairers Precision production Operators and related occupations Transportation and material-moving Other

SESTAT = Scientists and Engineers Statistical Data System

NOTES: The individual occupations included in SESTAT adhere to the Standard Occupational Classification (SOC), a U.S. Government standard classification scheme. The SOC was developed through an interagency committee headed by the Office of Management and Budget. It is used by Federal agencies that collect employment and occupational data and was meant to provide comparability of data among different Federal statistics agencies. The major and minor S&E groupings of occupations as shown in this table were developed by the National Science Foundation.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 3-2.
U.S. scientists and engineers, by S&E degree and labor force status: 1999

S&E degree status	Total	Labor force				
		Employed			Unemployed	Not in labor force
		Total	S&E	Non-S&E		
Scientists and engineers, total	13,033,900	10,981,600	3,540,800	7,440,800	193,200	1,859,100
Educated in S&E	12,473,000	10,479,800	3,258,900	7,221,000	184,100	1,809,100
Highest degree S&E	9,597,900	7,980,100	3,003,200	4,976,900	150,100	1,467,700
Highest degree non-S&E	2,875,100	2,499,700	255,700	2,244,100	34,000	341,400
No S&E degree ^a	560,900	501,800	282,000	219,800	9,100	49,900

^aPeople without S&E degrees or jobs in 1999 represent individuals who had S&E jobs in 1993 but later moved to non-S&E jobs, became unemployed, or had moved out of the labor force.

NOTES: Scientists and engineers include all those who have ever received a bachelor's degree or higher in S&E plus those holding a non-S&E bachelor's degree or higher who were employed in an S&E occupation during 1993, 1995, 1997, or 1999 Scientists and Engineers Statistical Data System (SESTAT) surveys. Figures are rounded to nearest hundred. Details may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Science & Engineering Indicators – 2002

Appendix table 3-3.
U.S. scientists and engineers, by S&E degree and labor force status: 1997

S&E degree status	Total	Labor force				
		Employed			Unemployed	Not in labor force
		Total	S&E	Non-S&E		
Scientists and engineers, total	12,512,000	10,585,600	3,369,400	7,216,200	191,900	1,734,600
Educated in S&E	11,943,400	10,057,600	3,077,500	6,980,100	185,400	1,700,400
Highest degree S&E	9,254,700	7,706,800	2,840,800	4,866,000	148,700	1,399,200
Highest degree non-S&E	2,688,800	2,350,800	236,600	2,114,100	36,700	301,300
No S&E degree ^a	568,600	528,000	292,000	236,100	6,400	34,100

^aPeople without S&E degrees or jobs in 1997 represent individuals who had S&E jobs in 1993 but later moved to non-S&E jobs, became unemployed, or had moved out of the labor force.

NOTES: Scientists and engineers include all those who have ever received a bachelor's degree or higher in S&E plus those holding a non-S&E bachelor's degree or higher who were employed in an S&E occupation during either the 1993, 1995, or 1997 Scientists and Engineers Statistical Data System (SESTAT) surveys. Figures are rounded to nearest hundred. Details may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1997.

Science & Engineering Indicators – 2002

Appendix table 3-4.
U.S. scientists and engineers, by S&E degree and labor force status: 1995

S&E degree status	Total	Labor force				
		Employed		Non-S&E	Unemployed	Not in labor force
		Total	S&E			
Scientists and engineers, total	11,987,100	10,114,500	3,185,600	6,928,900	245,900	1,626,700
Educated in S&E	11,407,600	9,570,000	2,851,400	6,718,600	234,200	1,603,300
Highest degree S&E	8,876,100	7,347,200	2,636,300	4,710,900	195,000	1,334,000
Highest degree non-S&E	2,531,400	2,222,800	215,200	2,007,600	39,300	269,400
No S&E degree ^a	579,500	544,500	334,100	210,400	11,600	23,400

^aPeople without S&E degrees or jobs in 1995 represent individuals who had S&E jobs in 1993 but later moved to non-S&E jobs, became unemployed, or had moved out of the labor force.

NOTES: Scientists and engineers include all those who have ever received a bachelor's degree or higher in S&E plus those holding a non-S&E bachelor's degree or higher who were employed in an S&E occupation during either the 1993 or 1995 Scientists and Engineers Statistical Data System (SESTAT) surveys. Figures are rounded to nearest hundred. Details may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1995.

Science & Engineering Indicators – 2002

Appendix table 3-5.
U.S. scientists and engineers, by S&E degree status and labor force status: 1993

S&E degree status	Total	Labor force				
		Employed			Unemployed	Not in labor force
		Total	S&E	Non-S&E		
Scientists and engineers, total	11,578,200	9,793,500	3,303,400	6,490,100	318,200	1,466,500
Educated in S&E	10,984,600	9,199,900	2,709,800	6,490,100	318,200	1,466,500
Highest degree S&E	8,536,900	7,035,800	2,517,800	4,518,000	269,000	1,232,100
Highest degree non-S&E	2,447,700	2,164,100	192,000	1,972,100	49,200	234,400
No S&E degree	593,600	593,600	593,600	NA	NA	NA

NA = not applicable

NOTES: Scientists and engineers include all those who have ever received a bachelor's degree or higher in S&E plus those holding a non-S&E bachelor's degree or higher who were employed in an S&E occupation during the 1993 Scientists and Engineers Statistical Data System (SESTAT) surveys. Figures are rounded to nearest hundred. Details may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

Science & Engineering Indicators – 2002

Appendix table 3-6.

Occupational distribution of employed U.S. scientists and engineers, by level and field of highest degree: 1999
 (Percentages)

Field of highest degree	Number	Total	Computer and math scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Engineers	Non-S&E occupations
					Percent			
All degree levels^a								
All degree fields	10,981,600	100.0	10.6	3.1	2.7	3.3	12.5	67.8
S&E degree fields	7,980,100	100.0	11.5	3.7	3.6	3.7	15.1	62.4
Sciences	6,043,700	100.0	11.8	4.9	4.5	4.9	2.2	71.9
 Computer and math sciences	1,045,800	100.0	47.5	0.1	0.4	0.2	3.1	48.6
Computer and information sciences	586,500	100.0	60.1	0.1	0.1	0.0	2.5	37.1
Mathematical sciences	459,300	100.0	31.4	0.2	0.8	0.5	3.8	63.3
 Life and related sciences	1,287,700	100.0	2.8	20.1	3.2	0.3	1.6	71.9
Agricultural and food sciences	230,400	100.0	2.6	18.0	1.4	0.3	0.9	76.9
Biological sciences	955,300	100.0	2.7	21.3	3.2	0.3	1.2	71.4
Environmental life sciences	102,100	100.0	4.1	13.7	7.9	1.2	7.0	66.0
 Physical and related sciences	621,700	100.0	7.5	3.4	34.4	0.4	9.5	44.8
Chemistry, except biochemistry	276,200	100.0	4.0	5.6	39.2	0.2	5.5	45.5
Earth science, geology, and oceanography	152,800	100.0	4.9	1.4	42.0	0.3	7.2	44.1
Physics and astronomy	144,000	100.0	18.5	1.4	26.6	0.2	19.1	34.1
Other	23,500	100.0	3.2	3.3	10.5	S	5.2	75.7
Social and related sciences	3,088,400	100.0	4.3	0.4	0.3	9.2	0.6	85.2
Economics	406,500	100.0	6.8	0.6	0.5	8.0	0.7	83.3
Political and related sciences	567,000	100.0	4.8	0.3	0.2	4.4	0.7	89.6
Psychology	1,166,100	100.0	3.8	0.5	0.1	15.4	0.6	79.6
Sociology and anthropology	592,700	100.0	2.1	0.3	0.1	6.0	0.2	91.3
Other	356,100	100.0	6.1	0.3	1.3	3.4	0.5	88.3
Engineering	1,936,400	100.0	10.6	0.3	0.8	0.1	55.4	32.7
Aerospace and related engineering	76,300	100.0	9.2	S	0.6	S	45.1	44.7
Chemical engineering	147,700	100.0	4.8	0.8	2.2	S	60.5	31.4
Civil and architectural engineering	330,200	100.0	2.6	S	0.5	0.1	63.1	33.6
Electrical and related engineering	587,000	100.0	22.0	0.1	0.3	0.1	51.1	26.3
Industrial engineering	106,200	100.0	11.4	S	S	S	37.5	51.0
Mechanical engineering	386,000	100.0	5.2	0.0	0.3	S	63.2	31.1
Other	302,500	100.0	7.1	0.9	2.6	0.2	52.0	37.2
Non-S&E degree fields	3,001,500	100.0	8.3	1.4	0.4	2.2	5.6	82.1
Business and management	728,700	100.0	17.5	0.7	0.6	1.0	10.9	69.3
Education	618,100	100.0	0.8	3.5	0.4	0.7	0.5	94.1
Health	452,900	100.0	6.8	1.0	0.4	3.5	1.3	87.0
Other	1,201,800	100.0	7.0	1.0	0.3	3.3	6.6	81.8

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-6.

Occupational distribution of employed U.S. scientists and engineers, by level and field of highest degree: 1999
(Percentages)

Field of highest degree	Number	Total	Computer and math scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Engineers	Non-S&E occupations
					Percent			
Bachelor's								
All degree fields	6,350,100	100.0	11.7	2.1	2.2	1.1	14.3	68.6
S&E degree fields	5,866,100	100.0	10.4	2.1	2.3	1.2	14.2	69.8
Sciences	4,486,100	100.0	10.8	2.7	2.9	1.5	2.0	80.1
Computer and math sciences	742,700	100.0	43.2	S	0.4	0.2	2.7	53.5
Computer and information sciences	413,500	100.0	58.5	S	S	S	2.1	39.3
Mathematical sciences	329,200	100.0	23.9	S	0.8	0.4	3.4	71.4
Life and related sciences	947,000	100.0	2.9	10.9	2.9	0.2	1.7	81.4
Agricultural and food sciences	182,300	100.0	2.6	10.5	0.8	S	0.9	85.0
Biological sciences	686,000	100.0	2.8	11.0	3.2	0.1	1.4	81.4
Environmental life sciences	78,700	100.0	4.4	10.2	5.4	S	6.1	72.8
Physical and related sciences	380,900	100.0	7.3	2.4	24.3	0.3	10.5	55.3
Chemistry, except biochemistry	175,100	100.0	4.6	4.1	30.2	S	6.2	54.5
Earth science, geology, and oceanography	101,800	100.0	4.6	0.9	30.8	S	8.4	55.2
Physics and astronomy	66,900	100.0	21.4	1.3	10.4	S	24.0	42.8
Other	16,600	100.0	S	S	4.9	S	4.5	88.0
Social and related sciences	2,415,500	100.0	4.5	0.3	0.3	2.6	0.6	91.8
Economics	340,300	100.0	6.7	S	S	2.5	0.9	88.9
Political and related sciences	482,900	100.0	4.9	0.3	S	1.2	0.7	92.7
Psychology	794,500	100.0	4.2	0.4	S	4.1	0.7	90.5
Sociology and anthropology	525,200	100.0	2.1	S	S	2.1	S	95.2
Other	272,600	100.0	5.9	S	0.8	1.4	S	91.1
Engineering	1,380,000	100.0	9.3	0.2	0.6	0.1	53.8	36.0
Aerospace and related engineering	53,600	100.0	9.1	S	S	S	41.7	48.3
Chemical engineering	112,000	100.0	4.7	0.6	2.3	S	58.5	33.5
Civil and architectural engineering	247,000	100.0	2.1	S	0.2	S	62.1	35.5
Electrical and related engineering	407,400	100.0	20.7	S	0.2	S	50.0	28.8
Industrial engineering	79,500	100.0	8.8	S	S	S	33.9	57.2
Mechanical engineering	304,200	100.0	4.2	S	S	S	62.5	33.0
Other	175,800	100.0	5.0	0.6	1.6	S	46.0	46.7
Non-S&E degree fields	484,000	100.0	26.6	2.6	0.5	0.7	15.3	54.3
Business and management	153,200	100.0	37.4	2.8	S	S	8.2	50.9
Education	59,100	100.0	4.5	4.9	S	S	S	86.7
Health	45,200	100.0	26.0	S	S	S	7.7	63.2
Other	226,500	100.0	25.2	2.1	S	1.1	24.8	46.4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-6.

Occupational distribution of employed U.S. scientists and engineers, by level and field of highest degree: 1999
 (Percentages)

Field of highest degree	Number	Total	Computer and math scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Engineers	Non-S&E occupations
					Percent			
Master's								
All degree fields	2,982,000	100.0	11.9	2.4	2.4	5.2	12.6	65.4
S&E degree fields	1,491,200	100.0	16.7	3.8	4.3	7.4	19.3	48.6
Sciences	1,040,400	100.0	17.5	5.4	5.6	10.4	2.6	58.5
Computer and math sciences	262,600	100.0	55.4	S	0.4	0.4	4.2	39.5
Computer and information sciences	160,900	100.0	63.5	S	S	S	3.5	32.7
Mathematical sciences	101,700	100.0	42.6	S	0.8	0.8	5.3	50.4
Life and related sciences	164,100	100.0	2.4	30.7	5.2	0.4	2.0	59.4
Agricultural and food sciences	30,100	100.0	2.4	33.1	3.5	S	S	59.8
Biological sciences	116,200	100.0	2.3	31.7	3.7	0.3	1.0	60.9
Environmental life sciences	17,900	100.0	3.3	20.2	17.4	S	9.3	48.8
Physical and related sciences	113,900	100.0	9.4	3.7	40.6	0.7	9.4	36.2
Chemistry, except biochemistry	37,400	100.0	3.1	6.6	47.6	S	3.7	38.9
Earth science, geology, and oceanography	34,200	100.0	6.5	2.4	57.8	S	6.3	26.3
Physics and astronomy	32,500	100.0	20.5	S	23.8	S	19.8	35.6
Other	5,100	100.0	S	S	16.9	S	S	56.1
Social and related sciences	499,800	100.0	4.3	0.3	0.5	21.3	0.4	73.2
Economics	43,700	100.0	9.4	S	S	18.0	S	70.7
Political and related sciences	67,400	100.0	4.7	S	S	13.3	S	80.7
Psychology	276,100	100.0	3.2	0.3	S	27.7	0.4	68.3
Sociology and anthropology	44,400	100.0	2.4	S	S	21.2	S	75.9
Other	68,100	100.0	6.3	S	2.4	5.1	S	85.3
Engineering	450,800	100.0	14.8	0.2	1.2	0.2	57.7	25.9
Aerospace and related engineering	17,800	100.0	9.6	S	S	S	47.9	41.9
Chemical engineering	22,000	100.0	5.4	0.6	1.4	S	66.1	26.6
Civil and architectural engineering	73,300	100.0	4.3	S	1.1	0.5	64.1	29.9
Electrical and related engineering	151,300	100.0	26.3	S	0.3	S	52.4	20.8
Industrial engineering	23,500	100.0	19.5	S	S	S	48.0	32.2
Mechanical engineering	68,300	100.0	9.5	S	S	S	64.0	26.0
Other	94,600	100.0	10.3	0.8	3.7	S	59.1	26.0
Non-S&E degree fields	1,490,800	100.0	7.1	1.0	0.6	3.1	6.0	82.2
Business and management	558,600	100.0	12.5	S	0.8	0.8	11.9	73.9
Education	113,600	100.0	2.0	5.9	1.5	2.7	1.2	86.7
Health	355,000	100.0	4.0	0.8	S	3.2	0.7	91.2
Other	463,600	100.0	4.2	1.1	0.5	5.9	4.1	84.1

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-6.

Occupational distribution of employed U.S. scientists and engineers, by level and field of highest degree: 1999
 (Percentages)

Field of highest degree	Number	Computer and math scientists		Life and related scientists		Physical and related scientists		Social and related scientists		Non-S&E occupations
		Total	Percent	Total	Percent	Total	Percent	Engineers		
Doctorate										
All degree fields	736,700	100.0	9.1	16.4	11.5	17.2	11.4	34.3		
S&E degree fields	614,600	100.0	9.6	19.2	13.7	18.8	13.4	25.2		
Sciences	509,000	100.0	9.4	22.9	16.0	22.6	2.3	26.7		
Computer and math sciences	40,600	100.0	76.4	0.9	0.8	0.4	3.5	17.9		
Computer and information sciences	12,100	100.0	72.4	S	S	S	4.7	22.1		
Mathematical sciences	28,500	100.0	78.1	1.2	1.1	0.5	2.9	16.2		
Life and related sciences	176,200	100.0	2.3	60.0	3.0	1.0	0.7	33.0		
Agricultural and food sciences	18,100	100.0	2.1	68.8	3.9	1.8	0.7	22.6		
Biological sciences	153,100	100.0	2.3	59.4	2.5	0.8	0.5	34.4		
Environmental life sciences	5,000	100.0	3.0	46.6	14.3	3.3	7.1	25.7		
Physical and related sciences	125,900	100.0	6.4	6.1	59.2	0.3	6.9	21.0		
Chemistry, except biochemistry	63,600	100.0	2.9	9.3	58.7	S	4.6	24.3		
Earth science, geology, and oceanography	16,500	100.0	4.1	2.3	77.5	S	2.4	13.6		
Physics and astronomy	43,800	100.0	12.6	2.4	53.9	0.5	11.4	19.1		
Other	1,800	100.0	S	20.0	45.0	S	13.9	17.2		
Social and related sciences	166,400	100.0	2.8	1.7	0.6	67.9	0.4	26.5		
Economics	22,500	100.0	2.8	1.6	S	71.1	S	24.1		
Political and related sciences	16,700	100.0	2.3	S	S	61.5	S	35.4		
Psychology	88,800	100.0	2.1	2.2	S	75.6	0.4	19.7		
Sociology and anthropology	23,100	100.0	2.4	0.9	0.5	63.6	S	32.3		
Other	15,300	100.0	8.5	2.1	4.6	32.1	S	51.6		
Engineering	105,600	100.0	10.7	1.5	3.0	0.2	66.4	18.2		
Aerospace and related engineering	4,900	100.0	9.4	S	S	S	72.7	14.9		
Chemical engineering	13,600	100.0	4.8	2.6	2.4	S	68.5	21.7		
Civil and architectural engineering	9,900	100.0	3.9	S	1.8	S	80.4	13.8		
Electrical and related engineering	28,300	100.0	18.1	0.2	2.1	S	60.4	18.9		
Industrial engineering	3,300	100.0	16.1	S	S	S	47.8	34.4		
Mechanical engineering	13,500	100.0	7.5	0.7	1.5	S	75.2	15.1		
Other	32,100	100.0	9.7	3.2	5.3	0.4	63.8	17.6		
Non-S&E degree fields	122,100	100.0	6.4	2.3	S	9.4	1.7	79.8		
Business and management	12,600	100.0	S	S	S	15.3	S	80.5		
Education	S	S	S	S	S	S	S	S		
Health	45,700	100.0	10.4	2.9	S	10.4	S	75.2		
Other	63,800	100.0	4.4	2.3	S	7.5	2.9	82.9		

S = suppressed for reasons of confidentiality and/or data reliability

^a Includes professional degrees.

NOTES: Scientists and engineers include all those who have ever received a bachelor's degree or higher in S&E plus those holding a non-S&E bachelor's degree or higher who were employed in an S&E occupation during either the 1993, 1995, 1997, or 1999 SESTAT surveys. Figures are rounded to nearest hundred. Details may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Science and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-7.

Occupational distribution of employed U.S. scientists and engineers, by level and field of highest degree: 1993
 (Percentages)

Field of highest degree	Number	Total	Computer and math scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Engineers	Non-S&E occupations
					Percent			
All degree levels^a								
All degree fields	9,793,500	100.0	10.1	3.3	2.9	3.2	14.2	66.3
S&E degree fields	7,035,800	100.0	8.9	3.6	3.7	3.4	16.2	64.2
Sciences	5,202,100	100.0	9.6	4.8	4.7	4.6	2.6	73.7
Computer and math sciences	918,000	100.0	40.6	0.1	0.5	0.2	3.6	55.0
Computer and information sciences	477,400	100.0	51.7	0.0	0.1	0.2	2.9	45.1
Mathematical sciences	440,600	100.0	28.6	0.2	0.9	0.2	4.3	65.8
Life and related sciences	1,073,100	100.0	2.0	20.3	2.9	0.3	2.3	72.1
Agricultural and food sciences	204,300	100.0	1.2	18.6	1.5	0.3	1.8	76.7
Biological sciences	785,100	100.0	2.1	21.3	2.7	0.3	2.1	71.5
Environmental life sciences	83,700	100.0	3.5	15.0	7.9	0.7	6.0	66.9
Physical and related sciences	599,800	100.0	5.5	3.1	33.5	0.2	9.2	48.5
Chemistry, except biochemistry	262,800	100.0	3.1	5.1	37.2	0.1	6.4	48.1
Earth science, geology, and oceanography	144,100	100.0	3.6	1.8	40.4	S	5.8	48.4
Physics and astronomy	142,100	100.0	11.9	1.1	29.4	0.3	17.3	40.0
Other	26,700	100.0	4.8	3.5	10.7	S	5.9	74.9
Social and related sciences	2,611,200	100.0	2.8	0.4	0.3	8.9	0.8	86.8
Economics	395,000	100.0	4.0	0.8	0.6	7.4	0.9	86.3
Political and related sciences	481,400	100.0	2.5	S	0.1	4.7	1.1	91.5
Psychology	960,700	100.0	2.8	0.5	0.1	14.7	0.6	81.3
Sociology and anthropology	485,900	100.0	1.5	0.3	0.1	5.9	0.5	91.7
Other	288,200	100.0	3.4	0.8	1.4	3.3	1.4	89.7
Engineering	1,833,700	100.0	6.7	0.2	0.9	0.1	55.0	37.2
Aerospace and related engineering	78,900	100.0	5.0	S	0.3	S	45.7	49.1
Chemical engineering	135,000	100.0	2.9	0.3	3.1	S	58.7	34.9
Civil and architectural engineering	310,300	100.0	1.1	S	0.4	S	58.4	40.0
Electrical and related engineering	544,300	100.0	15.2	0.0	0.3	0.1	55.0	29.5
Industrial engineering	103,300	100.0	9.2	S	S	0.1	35.9	54.7
Mechanical engineering	371,500	100.0	2.6	0.1	0.2	S	64.0	33.0
Other	289,900	100.0	3.4	0.6	3.2	0.1	47.3	45.5
Non-S&E degree fields	2,757,700	100.0	13.4	2.5	0.7	2.9	9.0	71.5
Business and management	657,400	100.0	25.5	1.1	0.6	1.4	15.2	56.1
Education	583,400	100.0	0.9	6.1	0.7	0.8	0.6	90.9
Health	418,600	100.0	12.1	1.8	1.0	5.2	4.1	75.7
Other	1,098,400	100.0	13.2	1.7	0.6	4.0	11.6	68.8

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-7.

Occupational distribution of employed U.S. scientists and engineers, by level and field of highest degree: 1993
 (Percentages)

Field of highest degree	Number	Total	Computer and math scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Engineers	Non-S&E occupations
					Percent			
Bachelor's								
All degree fields	5,727,200	100.0	11.8	2.3	2.3	1.2	17.0	65.4
S&E degree fields	5,172,600	100.0	8.1	2.0	2.4	1.0	15.9	70.5
Sciences	3,814,400	100.0	8.9	2.7	3.0	1.3	2.5	81.5
Computer and math sciences	663,800	100.0	37.1	S	0.5	0.1	3.0	59.2
Computer and information sciences	346,200	100.0	50.6	S	S	S	2.3	46.9
Mathematical sciences	317,700	100.0	22.4	S	0.9	0.2	3.7	72.7
Life and related sciences	773,600	100.0	2.2	11.6	2.6	0.2	2.6	80.9
Agricultural and food sciences	162,200	100.0	1.1	12.8	0.9	S	1.9	83.1
Biological sciences	546,400	100.0	2.4	11.0	2.7	0.2	2.5	81.2
Environmental life sciences	65,000	100.0	3.1	13.4	5.3	0.4	5.2	72.6
Physical and related sciences	372,500	100.0	5.7	2.3	23.1	0.1	10.1	58.7
Chemistry, except biochemistry	168,800	100.0	3.5	3.8	28.9	S	6.7	56.9
Earth science, geology, and oceanography	94,700	100.0	3.6	1.2	28.8	S	6.3	60.1
Physics and astronomy	70,700	100.0	14.5	1.0	12.2	0.2	22.1	50.0
Other	18,800	100.0	2.6	0.5	6.8	S	7.0	83.0
Social and related sciences	2,004,400	100.0	2.8	0.3	0.3	2.4	0.9	93.3
Economics	332,800	100.0	4.1	0.5	0.6	1.7	1.0	92.2
Political and related sciences	407,400	100.0	2.7	S	S	1.7	1.1	94.4
Psychology	619,600	100.0	3.0	0.4	0.1	4.1	0.7	91.7
Sociology and anthropology	424,400	100.0	1.4	0.1	0.1	2.0	0.5	95.8
Other	220,300	100.0	3.2	0.5	1.1	1.1	1.4	92.7
Engineering	1,358,300	100.0	5.9	0.1	0.6	0.1	53.5	39.8
Aerospace and related engineering	57,600	100.0	4.9	S	0.1	S	43.6	51.4
Chemical engineering	97,700	100.0	2.8	0.2	2.8	S	57.1	36.9
Civil and architectural engineering	236,700	100.0	0.8	S	0.1	S	56.7	42.3
Electrical and related engineering	395,600	100.0	14.3	S	0.2	S	54.1	31.4
Industrial engineering	82,300	100.0	6.8	S	S	S	34.8	58.3
Mechanical engineering	301,000	100.0	2.2	S	S	S	63.4	34.2
Other	187,000	100.0	2.3	0.4	2.2	S	42.2	52.9
Non-S&E degree fields	554,500	100.0	46.0	4.6	1.4	2.9	27.2	17.8
Business and management	178,800	100.0	63.2	3.0	0.8	1.4	20.1	11.4
Education	55,200	100.0	6.1	10.8	3.2	2.4	5.4	72.2
Health	60,100	100.0	43.1	3.8	2.4	1.6	19.5	29.5
Other	260,400	100.0	43.3	4.6	1.2	4.4	38.4	8.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-7.

Occupational distribution of employed U.S. scientists and engineers, by level and field of highest degree: 1993
 (Percentages)

Field of highest degree	Number	Total	Computer and math scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Engineers	Non-S&E occupations
					Percent			
Master's								
All degree fields	2,575,600	100.0	10.2	2.7	2.8	5.2	13.6	65.4
S&E degree fields	1,328,400	100.0	12.2	3.8	4.8	6.8	19.4	53.1
Sciences	937,700	100.0	13.3	5.3	6.1	9.6	3.1	62.6
Computer and math sciences	221,400	100.0	46.0	0.2	0.4	0.4	5.4	47.5
Computer and information sciences	124,400	100.0	53.4	S	S	S	4.5	41.2
Mathematical sciences	97,000	100.0	36.5	0.4	0.8	S	6.6	55.5
Life and related sciences	151,000	100.0	2.1	28.9	4.8	0.4	2.1	61.6
Agricultural and food sciences	26,100	100.0	2.3	29.7	3.6	S	1.3	62.8
Biological sciences	110,200	100.0	1.7	30.7	3.2	0.4	1.3	62.8
Environmental life sciences	14,800	100.0	5.2	14.1	19.1	1.1	10.0	50.5
Physical and related sciences	111,300	100.0	6.9	3.0	42.5	0.3	9.2	38.1
Chemistry, except biochemistry	34,000	100.0	3.4	5.5	44.9	S	7.8	38.2
Earth science, geology, and oceanography	34,000	100.0	4.7	2.5	58.6	S	5.3	28.8
Physics and astronomy	32,400	100.0	12.1	0.2	34.2	S	15.2	37.7
Other	6,500	100.0	12.2	7.2	16.1	S	2.2	62.3
Social and related sciences	453,900	100.0	2.7	0.5	0.4	19.3	0.8	76.3
Economics	41,800	100.0	4.7	2.2	1.4	25.1	1.0	65.6
Political and related sciences	58,300	100.0	2.0	S	S	12.0	1.5	84.2
Psychology	259,700	100.0	2.7	0.2	S	22.7	0.4	73.9
Sociology and anthropology	39,900	100.0	1.7	0.8	S	20.2	0.3	76.8
Other	54,200	100.0	2.9	S	2.0	5.9	1.7	87.1
Engineering	390,700	100.0	9.3	0.2	1.6	S	58.6	30.3
Aerospace and related engineering	17,900	100.0	5.5	S	0.7	S	48.3	45.4
Chemical engineering	24,800	100.0	3.3	0.4	3.2	S	64.0	29.0
Civil and architectural engineering	65,100	100.0	1.5	S	1.3	S	62.8	34.1
Electrical and related engineering	127,300	100.0	18.2	S	0.3	S	57.8	23.7
Industrial engineering	18,700	100.0	18.4	S	S	S	39.8	41.7
Mechanical engineering	59,900	100.0	4.5	S	0.6	S	65.9	28.9
Other	76,900	100.0	5.4	0.4	4.8	S	56.1	33.3
Non-S&E degree fields	1,247,100	100.0	8.2	1.6	0.7	3.6	7.4	78.5
Business and management	462,100	100.0	11.5	0.4	0.6	1.1	13.9	72.5
Education	76,100	100.0	2.1	11.0	2.0	3.6	0.6	80.6
Health	311,100	100.0	6.5	1.3	0.7	4.6	1.5	85.4
Other	397,800	100.0	6.8	1.5	0.6	5.7	5.7	79.7

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-7.

Occupational distribution of employed U.S. scientists and engineers, by level and field of highest degree: 1993
 (Percentages)

Field of highest degree	Number	Total	Computer and math scientists	Life and related scientists	Physical and related scientists	Social and related scientists	Engineers	Non-S&E occupations
					Percent			
Doctorate								
All degree fields	634,800	100.0	7.7	15.4	12.1	16.8	10.2	37.7
S&E degree fields	529,200	100.0	7.6	18.2	14.3	17.6	11.7	30.7
Sciences	444,500	100.0	7.7	21.4	16.3	20.9	2.3	31.3
Computer and math sciences	32,800	100.0	75.2	0.3	0.8	0.5	3.4	19.8
Computer and information sciences	6,800	100.0	74.6	S	S	0.8	3.0	21.0
Mathematical sciences	26,000	100.0	75.3	0.3	1.0	0.4	3.4	19.5
Life and related sciences	148,500	100.0	1.3	57.1	2.8	0.6	0.9	37.4
Agricultural and food sciences	16,100	100.0	0.9	58.9	4.0	S	0.8	35.1
Biological sciences	128,500	100.0	1.3	57.2	2.5	0.5	0.8	37.7
Environmental life sciences	3,900	100.0	2.9	44.4	7.7	4.4	4.5	36.1
Physical and related sciences	115,900	100.0	3.5	6.0	58.1	0.1	6.4	25.8
Chemistry, except biochemistry	60,000	100.0	1.7	8.7	56.3	S	4.4	28.9
Earth science, geology, and oceanography	15,400	100.0	1.5	3.8	71.8	S	3.5	19.4
Physics and astronomy	39,000	100.0	7.2	2.0	56.4	0.3	10.3	23.8
Other	1,400	100.0	S	27.4	39.8	S	9.2	23.6
Social and related sciences	147,300	100.0	2.4	2.4	0.5	62.2	0.4	32.0
Economics	20,400	100.0	1.3	1.5	S	63.8	S	33.2
Political and related sciences	15,600	100.0	1.2	S	S	55.9	0.6	41.8
Psychology	75,900	100.0	1.7	2.7	S	70.6	0.4	24.5
Sociology and anthropology	21,700	100.0	3.0	1.6	S	57.5	S	37.3
Other	13,700	100.0	8.5	5.8	3.7	28.7	S	52.5
Engineering	84,700	100.0	7.0	0.9	3.5	0.1	60.7	27.8
Aerospace and related engineering	3,400	100.0	3.9	S	S	S	66.3	29.2
Chemical engineering	12,500	100.0	2.9	0.9	4.6	S	60.5	30.9
Civil and architectural engineering	8,500	100.0	5.6	S	2.4	S	71.2	20.7
Electrical and related engineering	21,400	100.0	12.6	0.3	2.2	S	55.2	29.6
Industrial engineering	2,300	100.0	19.6	S	S	S	44.5	32.9
Mechanical engineering	10,700	100.0	2.5	S	2.6	S	71.3	23.1
Other	26,000	100.0	5.8	2.0	5.6	S	58.3	28.3
Non-S&E degree fields	105,600	100.0	8.1	1.9	1.4	13.0	3.0	72.6
Business and management	11,900	100.0	9.5	S	S	13.1	S	75.9
Education	S	S	S	S	S	S	S	S
Health	41,300	100.0	10.3	2.6	1.8	15.5	1.7	68.2
Other	52,400	100.0	6.1	1.4	1.5	11.0	4.7	75.3

S = suppressed for reasons of confidentiality and/or data reliability

^a Includes professional degrees

NOTES: Scientists and engineers include all people who have ever received a bachelor's degree or higher in an S&E field plus people holding a non-S&E bachelor's degree or higher who were employed in an S&E occupation during the 1993 SESTAT surveys. Figures are rounded to nearest hundred. Details may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Science and Engineers Statistical Data System (SESTAT), 1993.

Appendix table 3-8.

Employed individuals with S&E highest degrees whose jobs are closely related to field of highest degree by degree level and years since degree: 1999
 (Percentages)

Field of highest degree	Employed S&Es, total	Years since degree						
		1–5	6–10	11–15	16–20	21–25	26–30	31–35
All degree levels^a								
All S&E	45.7	49.1	50.3	51.3	47.3	39.2	37.0	42.5
Engineering	54.6	58.7	55.8	55.5	56.9	52.4	50.4	52.6
Aerospace engineering	45.3	53.7	42.7	45.4	52.8	37.3	41.1	50.7
Chemical engineering	45.2	47.1	48.2	47.1	41.4	43.5	40.2	53.3
Civil engineering	65.8	68.0	70.0	71.1	68.2	58.3	65.3	62.9
Electrical engineering	59.7	63.7	57.9	60.4	67.2	59.0	48.4	56.4
Industrial engineering	37.7	47.2	29.3	40.2	39.5	32.9	45.2	S
Mechanical engineering	50.2	53.3	55.2	46.0	50.2	56.1	48.0	49.8
Other engineering	50.7	58.6	55.1	55.4	49.3	43.2	48.2	45.8
Life sciences	48.3	50.8	58.3	56.3	45.8	40.5	41.5	45.0
Agriculture	48.0	57.9	52.8	60.7	40.8	41.0	49.1	53.5
Biological sciences	48.6	50.0	60.6	55.2	47.3	41.2	39.6	43.8
Health and medical	45.7	48.7	43.7	53.8	48.6	32.0	44.3	24.4
Computer and math sciences	60.8	70.0	66.6	67.9	68.0	48.8	36.1	38.4
Computer sciences	74.6	76.7	73.3	74.6	77.0	73.8	59.6	66.6
Mathematical sciences	43.2	56.2	52.5	48.5	50.2	34.5	30.2	36.7
Physical sciences	47.4	57.3	57.6	47.3	45.0	41.1	37.2	48.8
Chemistry	51.4	66.1	62.7	54.8	50.7	44.6	36.6	51.2
Geosciences	44.8	51.3	56.7	40.0	41.1	41.0	38.6	61.1
Physics and astronomy	41.8	49.3	45.5	38.9	32.1	37.5	35.2	44.6
Other physical sciences	49.3	42.9	66.6	56.9	69.4	33.1	45.2	S
Social sciences	33.7	37.2	36.7	36.2	33.6	29.8	27.6	32.4
Economics	28.9	34.4	26.8	29.0	27.4	27.4	22.4	37.3
Political sciences	23.5	27.9	30.4	14.9	25.5	18.4	20.6	16.2
Psychology	41.1	44.6	43.4	51.7	40.9	35.3	29.8	39.2
Sociology and anthropology	30.3	33.0	36.2	23.7	26.5	30.3	27.5	32.0
Other social sciences	36.5	36.2	40.3	46.7	35.8	28.9	36.9	36.1

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-8.

Employed individuals with S&E highest degrees whose jobs are closely related to field of highest degree by degree level and years since degree: 1999
 (Percentages)

Field of highest degree	Employed S&Es, total	Years since degree							
		1–5	6–10	11–15	16–20	21–25	26–30	31–35	
Bachelor's									
All S&E	39.5	42.0	44.5	44.8	41.7	33.1	31.0	36.3	33.3
Engineering	52.2	54.9	52.5	53.3	55.5	51.4	48.8	48.9	45.1
Aerospace engineering	41.2	45.3	36.4	39.5	51.9	33.5	45.5	51.2	29.8
Chemical engineering	42.0	43.0	46.6	39.9	38.7	42.7	37.5	56.0	36.8
Civil engineering	65.4	67.2	70.1	72.0	66.7	59.7	65.2	58.8	57.3
Electrical engineering	57.0	59.0	52.5	57.4	66.4	57.7	47.4	51.9	58.1
Industrial engineering	34.4	39.6	22.5	37.6	40.6	26.3	43.3	S	30.0
Mechanical engineering	48.9	50.8	54.7	46.1	50.2	54.0	45.9	47.0	40.6
Other engineering	45.8	53.8	50.1	52.9	46.1	39.2	43.6	37.2	34.2
Life sciences	41.8	44.2	53.9	50.0	39.6	33.6	34.4	39.3	30.5
Agriculture	45.6	52.2	49.9	58.5	39.4	41.3	48.4	53.3	20.6
Biological sciences	41.0	42.8	55.8	46.2	40.0	32.4	31.0	36.7	32.5
Health and medical	40.2	45.2	41.0	54.9	37.3	27.3	34.1	S	S
Computer and math sciences	57.8	66.6	63.2	66.5	66.8	46.6	28.7	34.0	35.8
Computer sciences	73.7	74.2	70.9	74.7	77.3	76.5	55.4	S	S
Mathematical sciences	37.8	51.8	47.4	42.7	44.3	29.7	23.2	32.5	35.1
Physical sciences	41.6	54.1	55.7	40.1	38.6	34.8	29.4	41.8	31.8
Chemistry	47.3	64.1	64.1	51.6	45.3	37.3	30.2	46.8	29.7
Geosciences	37.0	45.2	46.8	30.8	33.7	36.7	32.6	S	32.0
Physics and astronomy	31.9	45.7	38.7	24.1	20.8	25.9	12.3	38.2	42.6
Other physical sciences	44.9	37.6	66.0	53.4	63.0	30.3	48.9	S	S
Social sciences	25.5	30.0	30.3	21.7	22.8	21.6	21.1	25.7	21.2
Economics	23.2	29.1	23.0	20.2	22.0	21.2	13.5	31.9	26.9
Political sciences	19.6	23.1	28.0	11.0	19.3	12.8	18.2	15.5	18.2
Psychology	27.0	34.2	32.1	28.1	23.1	20.6	16.0	19.9	14.7
Sociology and anthropology	27.6	29.2	33.8	16.0	23.8	29.3	26.1	29.8	24.0
Other social sciences	30.5	30.3	34.6	41.5	26.6	21.5	32.4	31.4	22.5

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-8.

Employed individuals with S&E highest degrees whose jobs are closely related to field of highest degree by degree level and years since degree: 1999
 (Percentages)

Field of highest degree	Employed S&Es, total	Years since degree							
		1–5	6–10	11–15	16–20	21–25	26–30	31–35	
Master's									
All S&E	60.1	67.6	64.1	65.5	59.5	52.0	48.6	54.1	48.2
Engineering	59.8	64.6	61.6	61.3	61.0	53.3	54.9	60.1	41.7
Aerospace engineering	52.7	57.8	51.5	71.9	54.0	S	S	S	S
Chemical engineering	53.9	59.0	48.3	76.7	54.3	44.0	37.3	S	60.8
Civil engineering	66.6	68.6	70.0	67.2	72.4	52.2	66.4	74.5	53.6
Electrical engineering	65.7	71.3	67.9	66.7	69.4	61.6	51.7	66.4	38.6
Industrial engineering	45.9	57.8	41.4	48.8	30.9	40.3	60.3	S	S
Mechanical engineering	53.8	59.4	55.4	43.0	49.6	63.2	57.4	58.9	34.0
Other engineering	55.4	59.8	58.2	59.2	52.7	46.3	56.6	50.7	S
Life sciences	60.6	71.6	63.9	66.4	55.7	54.9	52.6	49.1	60.8
Agriculture	49.2	73.0	49.6	69.7	37.1	S	S	S	S
Biological sciences	63.3	75.4	69.5	68.9	57.3	60.7	51.4	48.9	69.8
Health and medical	62.3	55.5	52.2	S	75.1	62.4	S	S	S
Computer and math sciences	67.9	77.4	75.4	71.6	71.0	52.3	50.6	45.0	62.1
Computer sciences	76.5	82.0	79.4	73.9	76.3	66.5	64.9	S	S
Mathematical sciences	54.3	64.8	65.5	63.5	60.5	42.4	44.1	42.6	61.1
Physical sciences	53.6	66.6	57.5	52.3	53.5	47.9	41.0	49.9	59.3
Chemistry	56.1	72.8	45.5	58.0	60.6	64.0	35.3	58.0	40.0
Geosciences	54.2	61.9	67.0	47.6	59.5	38.7	36.0	S	S
Physics and astronomy	47.1	64.3	51.0	42.7	24.0	38.8	51.7	32.8	70.7
Other physical sciences	63.0	59.3	66.7	67.9	92.3	S	S	S	S
Social sciences	57.7	64.3	60.3	68.4	55.8	50.8	43.3	56.3	40.1
Economics	48.0	53.0	40.3	79.9	41.0	35.7	44.8	57.6	S
Political sciences	39.9	50.8	41.9	35.4	43.3	39.3	S	S	S
Psychology	67.4	74.1	70.0	77.8	62.9	61.5	50.1	79.7	54.3
Sociology and anthropology	40.8	61.1	44.0	46.8	27.5	22.8	S	43.3	S
Other social sciences	53.3	53.8	69.0	54.5	57.3	47.4	48.1	51.0	S

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-8.

**Employed individuals with S&E highest degrees whose jobs are closely related to field of highest degree by degree level and years since degree: 1999
(Percentages)**

Field of highest degree	Employed S&Es, total	Years since degree							
		1–5	6–10	11–15	16–20	21–25	26–30	31–35	
Doctorate									
All S&E	69.2	73.4	71.8	70.3	68.5	66.1	62.7	67.1	69.8
Engineering	63.6	69.2	64.3	61.0	67.0	60.4	52.5	67.5	62.8
Aerospace engineering	62.1	75.5	73.3	48.9	74.2	70.2	49.0	43.4	S
Chemical engineering	57.2	65.5	57.6	43.7	62.2	47.6	61.9	59.8	66.1
Civil engineering	71.9	79.8	67.9	75.1	80.1	74.2	61.3	72.3	66.8
Electrical engineering	66.1	69.1	67.1	71.7	71.0	65.5	48.2	70.1	64.9
Industrial engineering	58.5	62.4	66.5	58.6	S	96.8	37.7	S	S
Mechanical engineering	61.1	62.2	62.2	61.3	52.1	66.5	53.7	78.0	47.5
Other engineering	63.3	70.9	62.9	59.3	66.5	53.9	50.3	75.6	68.8
Life sciences	71.5	75.4	73.8	71.4	68.0	70.1	67.8	70.9	71.5
Agriculture	69.7	76.1	72.2	66.7	67.5	66.8	73.6	66.9	50.9
Biological sciences	71.6	74.9	74.2	71.8	67.8	70.6	67.0	71.1	73.7
Health and medical	76.1	87.8	68.2	79.9	76.6	66.9	68.6	86.1	S
Computer and math sciences	70.0	73.9	69.7	76.5	70.0	65.5	56.5	69.5	87.9
Computer sciences	78.0	78.2	75.2	81.4	72.2	94.2	S	S	S
Mathematical sciences	66.6	69.9	64.7	73.4	69.0	62.2	55.8	69.5	87.9
Physical sciences	59.7	62.4	62.9	61.8	59.5	56.1	53.7	60.7	60.4
Chemistry	59.9	67.8	65.8	59.0	59.4	54.9	54.1	56.2	60.2
Geosciences	74.6	72.3	74.5	80.7	71.4	70.1	72.2	83.1	79.0
Physics and astronomy	53.7	51.9	51.9	58.6	55.8	49.9	48.7	61.6	55.0
Other physical sciences	63.7	59.0	73.0	55.6	54.0	100.0	S	S	S
Social sciences	77.3	81.8	82.0	79.0	74.9	71.6	74.1	71.9	80.4
Economics	77.8	80.3	85.8	77.1	72.3	78.8	78.1	67.3	76.7
Political sciences	69.7	70.6	76.6	72.8	83.8	59.0	63.6	59.6	69.7
Psychology	81.7	85.7	85.9	83.4	79.5	76.2	77.9	76.8	83.1
Sociology and anthropology	71.2	78.9	78.2	71.1	63.4	63.7	71.9	70.1	91.7
Other social sciences	68.3	78.4	63.1	71.3	65.5	62.5	66.5	77.7	56.8

^aIncludes professional degrees.

S = suppressed for reasons of confidentiality and/or data reliability

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-9.

Employed individuals with S&E highest degrees whose jobs are closely or somewhat related to field of highest degree by degree level and years since degree: 1999
 (Percentages)

Field of highest degree	Employed S&Es, total	Years since degree							
		1–5	6–10	11–15	16–20	21–25	26–30	31–35	
All degree levels									
All S&E	76.8	77.5	80.1	81.1	77.7	73.0	73.0	74.2	70.1
Engineering	89.6	91.9	91.0	91.1	89.6	89.2	88.6	88.1	80.2
Aerospace engineering	79.8	85.7	74.7	80.6	75.9	95.5	80.4	92.6	44.9
Chemical engineering	86.7	85.8	91.2	88.9	83.7	91.1	87.6	89.7	71.7
Civil engineering	92.0	92.0	93.0	93.8	89.6	88.9	94.0	94.4	92.8
Electrical engineering	92.9	95.5	92.4	93.8	95.8	93.0	89.5	89.6	83.2
Industrial engineering	83.9	89.9	86.7	88.6	80.6	77.5	85.6	71.9	69.9
Mechanical engineering	89.5	91.8	91.0	90.9	90.4	89.9	89.1	85.6	80.6
Other engineering	86.5	90.0	91.2	87.7	87.0	83.1	84.0	82.5	77.2
Life sciences	74.4	75.8	83.8	79.0	72.6	69.1	70.1	70.4	64.3
Agriculture	74.6	80.8	80.9	77.6	73.4	70.2	69.4	78.5	60.8
Biological sciences	74.4	74.5	84.9	79.2	73.3	69.1	70.6	69.4	63.4
Health and medical	73.3	79.6	77.3	80.8	64.6	66.4	66.8	46.3	99.1
Computer and math sciences	87.7	92.2	89.4	90.8	91.4	88.0	77.2	71.8	68.4
Computer sciences	93.3	94.8	93.4	92.9	92.9	94.6	87.6	87.2	S
Mathematical sciences	80.5	86.8	81.0	84.6	88.4	84.1	74.6	70.9	68.1
Physical sciences	77.8	83.0	84.4	77.4	75.1	75.7	72.7	83.7	67.2
Chemistry	79.8	87.2	90.2	80.8	79.6	75.5	71.7	85.1	61.7
Geosciences	72.1	79.0	76.0	69.2	71.1	71.2	66.8	82.7	59.9
Physics and astronomy	79.5	81.8	81.6	78.1	72.2	82.3	75.9	82.2	84.2
Other physical sciences	79.4	68.7	85.4	87.4	80.0	78.0	83.5	78.1	59.5
Social sciences	65.9	66.8	68.0	68.2	66.6	63.1	63.7	62.6	63.0
Economics	71.9	78.6	72.4	70.8	72.7	65.7	65.8	71.1	76.4
Political sciences	55.5	56.6	57.6	54.5	56.0	54.1	53.6	50.5	58.0
Psychology	72.0	72.6	75.0	76.0	73.2	69.3	68.3	63.7	62.6
Sociology and anthropology	61.5	61.9	64.3	62.2	60.9	60.2	59.6	65.4	57.9
Other social sciences	62.7	62.9	63.1	70.5	56.9	56.9	71.7	61.0	47.9

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-9.

Employed individuals with S&E highest degrees whose jobs are closely or somewhat related to field of highest degree by degree level and years since degree: 1999
 (Percentages)

Field of highest degree	Employed S&Es, total	Years since degree							
		1–5	6–10	11–15	16–20	21–25	26–30	31–35	
Bachelor's									
All S&E	72.4	72.3	76.0	76.8	73.8	68.1	68.8	69.6	67.8
Engineering	88.6	91.0	89.9	90.0	88.6	88.6	89.3	86.1	80.5
Aerospace engineering	76.8	77.8	68.9	77.0	75.8	95.7	90.5	88.7	39.8
Chemical engineering	84.5	83.6	89.9	86.0	82.1	90.9	84.0	88.7	70.3
Civil engineering	92.4	91.9	91.6	93.3	87.7	92.7	95.5	96.3	93.7
Electrical engineering	92.3	95.0	91.4	92.6	95.5	91.9	92.1	86.8	83.8
Industrial engineering	82.9	86.8	84.6	89.0	78.9	79.8	86.6	72.3	71.9
Mechanical engineering	89.1	91.9	90.5	90.6	91.4	88.1	88.7	83.7	81.2
Other engineering	82.8	88.5	92.3	84.9	84.0	74.7	79.3	74.8	77.8
Life sciences	69.0	70.5	80.8	73.4	66.8	63.5	64.1	64.1	58.2
Agriculture	72.3	76.7	79.5	73.8	71.7	69.8	66.8	79.2	60.4
Biological sciences	68.2	68.7	81.8	73.0	66.5	62.0	64.0	61.1	54.0
Health and medical	67.8	77.2	72.6	76.3	52.7	61.5	59.6	S	S
Computer and math sciences	86.1	90.2	87.4	90.0	91.3	84.4	75.0	70.8	66.0
Computer sciences	92.8	93.2	91.8	93.0	93.3	94.6	87.8	S	S
Mathematical sciences	77.6	84.5	78.4	81.0	87.1	78.7	72.4	69.7	65.7
Physical sciences	72.2	79.0	80.5	71.2	69.4	71.8	64.3	78.4	61.0
Chemistry	74.5	83.0	90.3	76.3	73.7	69.1	62.3	81.6	56.5
Geosciences	65.7	73.8	64.4	64.2	65.7	65.5	60.7	73.3	54.5
Physics and astronomy	74.7	80.7	76.6	64.6	66.2	93.8	62.5	74.5	79.6
Other physical sciences	74.5	61.1	77.6	85.2	73.6	75.1	84.7	S	58.6
Social sciences	60.2	61.7	63.7	58.8	59.5	57.3	58.5	58.1	60.3
Economics	68.9	76.2	71.1	66.5	69.5	61.4	61.9	64.4	74.8
Political sciences	52.1	51.0	55.9	51.2	53.4	50.0	49.0	50.0	57.3
Psychology	63.3	66.2	67.9	60.8	63.1	60.6	59.6	49.5	55.8
Sociology and anthropology	59.1	59.2	62.2	56.0	58.4	59.2	56.8	65.4	55.2
Other social sciences	57.3	58.3	57.5	63.2	45.3	49.4	70.7	59.4	48.6

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-9.

**Employed individuals with S&E highest degrees whose jobs are closely or somewhat related to field of highest degree by degree level and years since degree: 1999
(Percentages)**

Field of highest degree	Employed S&Es, total	Years since degree						
		1–5	6–10	11–15	16–20	21–25	26–30	31–35
Master's								
All S&E	87.6	91.2	90.7	91.1	86.1	84.3	81.6	83.2
Engineering	91.8	93.2	93.1	94.8	92.7	90.3	87.0	92.5
Aerospace engineering	84.6	93.7	85.1	95.0	73.4	93.9	58.4	95.6
Chemical engineering	93.8	92.7	98.2	100.0	90.8	92.1	100.0	88.5
Civil engineering	90.4	91.8	96.5	95.1	95.4	75.4	88.4	89.4
Electrical engineering	94.2	96.3	94.3	96.6	96.7	96.1	82.1	95.7
Industrial engineering	86.5	93.9	91.2	86.4	89.2	72.1	88.7	S
Mechanical engineering	90.8	91.5	93.0	91.6	83.0	97.1	91.9	93.1
Other engineering	91.8	90.5	89.2	93.9	93.8	95.3	92.8	92.6
Life sciences	85.8	92.4	86.4	89.5	83.9	83.1	80.1	79.9
Agriculture	78.5	91.8	74.9	94.1	75.8	65.2	S	70.6
Biological sciences	86.8	94.3	88.3	87.9	84.5	86.2	79.2	83.8
Health and medical	91.4	86.1	91.6	93.2	92.9	100.0	S	S
Computer and math sciences	91.5	96.0	94.4	93.1	91.2	96.8	80.6	70.8
Computer sciences	94.3	97.8	97.4	92.1	91.3	94.6	87.2	S
Mathematical sciences	87.0	91.2	87.1	96.8	91.0	98.4	77.6	70.3
Physical sciences	83.9	90.5	92.4	79.7	79.6	76.8	80.4	89.4
Chemistry	84.9	95.0	87.1	76.8	84.0	81.7	82.8	93.5
Geosciences	81.1	87.6	93.1	73.3	85.2	76.0	68.1	S
Physics and astronomy	82.6	87.2	91.4	91.1	60.4	64.7	86.7	84.4
Other physical sciences	94.3	91.7	100.0	91.0	100.0	100.0	S	S
Social sciences	83.1	86.8	85.3	89.6	81.4	78.0	78.5	76.6
Economics	82.3	89.5	75.3	93.4	82.3	72.4	71.7	100.0
Political sciences	71.6	85.7	65.3	75.8	59.7	69.1	71.2	S
Psychology	88.7	90.8	93.8	93.0	86.0	85.0	82.4	91.0
Sociology and anthropology	74.9	82.2	75.0	87.0	66.1	56.1	88.1	61.6
Other social sciences	77.8	76.9	88.9	83.2	86.4	75.7	70.4	S

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-9.

Employed individuals with S&E highest degrees whose jobs are closely or somewhat related to field of highest degree by degree level and years since degree: 1999
 (Percentages)

Field of highest degree	Employed S&Es, total	Years since degree						
		1–5	6–10	11–15	16–20	21–25	26–30	31–35
Doctorate								
All S&E	92.6	95.0	93.5	92.5	92.4	91.1	90.1	92.0
Engineering	92.6	94.4	93.0	91.4	94.8	91.5	87.4	95.6
Aerospace engineering	94.6	95.9	95.5	91.0	100.0	100.0	87.6	100.0
Chemical engineering	92.9	95.3	91.5	89.1	97.0	90.5	91.4	97.0
Civil engineering	95.3	94.8	94.1	97.4	99.2	90.1	100.0	87.5
Electrical engineering	94.3	95.9	94.1	96.4	96.1	95.2	86.0	97.9
Industrial engineering	87.9	98.0	90.7	90.2	100.0	100.0	60.0	S
Mechanical engineering	91.4	91.1	90.9	93.9	91.7	90.6	86.1	100.0
Other engineering	90.8	93.6	92.9	85.3	92.7	88.7	85.3	93.0
Life sciences	92.9	95.6	95.3	90.8	91.3	90.9	92.1	92.8
Agriculture	91.1	94.4	95.9	87.2	91.8	87.9	89.7	93.1
Biological sciences	93.0	95.5	95.2	91.2	91.3	90.9	92.3	92.8
Health and medical	95.3	100.0	92.9	93.9	91.2	99.6	96.5	86.1
Computer and math sciences	93.1	96.0	92.3	93.3	93.6	93.1	88.3	90.3
Computer sciences	97.7	98.5	96.4	97.0	98.4	100.0	S	S
Mathematical sciences	91.1	93.8	88.6	91.0	91.6	92.3	88.1	90.3
Physical sciences	89.5	91.8	87.7	91.8	90.9	87.8	86.9	88.7
Chemistry	91.1	95.7	91.0	92.6	91.4	91.4	88.3	87.3
Geosciences	92.6	92.3	88.1	91.6	91.5	94.5	93.9	97.0
Physics and astronomy	85.6	86.5	81.4	90.1	90.4	79.3	83.0	88.7
Other physical sciences	96.3	93.1	100.0	100.0	81.7	100.0	S	S
Social sciences	94.7	96.3	96.4	95.1	93.2	92.9	93.3	93.9
Economics	97.2	95.7	96.9	97.3	95.9	99.1	97.3	98.5
Political sciences	91.3	93.7	92.3	88.2	97.1	88.0	89.8	87.7
Psychology	96.1	98.0	97.9	96.7	94.7	94.0	93.7	95.7
Sociology and anthropology	91.2	92.2	94.5	91.4	89.2	88.8	91.7	85.3
Other social sciences	91.9	96.4	93.0	94.3	85.8	90.3	91.6	90.8

^aIncludes professional degrees.

S = suppressed for reasons of confidentiality and/or data reliability

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-10.

Individuals with S&E occupations, by highest degree attained, occupation, and employment status: 1999

Occupation	Total S&Es	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		All degree levels ^a						
All S&E occupations	4,120,700	3,540,800	3,267,400	273,400	56,000	523,900	364,400	159,400
Scientists	2,464,500	2,170,500	1,949,400	221,100	30,200	263,800	146,100	117,700
Computer and math scientists	1,277,900	1,167,400	1,092,400	74,900	14,700	95,800	52,700	43,100
Computer and information scientists	1,147,400	1,058,100	1,011,400	46,700	13,400	75,800	41,000	34,900
Mathematical scientists	45,100	36,200	31,200	5,000	900	8,000	4,700	3,300
Postsecondary teachers	85,400	73,000	49,800	23,200	400	12,000	7,100	4,900
Life and related scientists	406,100	341,900	311,800	30,100	4,400	59,800	28,800	31,000
Agricultural and food scientists	47,500	39,700	37,000	2,700	400	7,400	4,400	2,900
Biological scientists	244,800	206,500	192,700	13,800	2,200	36,100	12,800	23,300
Environmental life scientists	22,800	19,800	18,300	1,600	S	2,200	2,200	S
Postsecondary teachers	90,900	75,800	63,800	12,100	1,000	14,100	9,400	4,700
Physical and related scientists	360,600	297,900	272,000	25,900	5,800	57,000	39,300	17,700
Chemistry, except biochemistry	155,200	121,700	116,000	5,700	3,700	29,800	20,700	9,200
Earth scientists, geologists, oceanographers	83,900	72,800	66,900	5,900	1,400	9,600	7,000	2,700
Physicists and astronomers	37,900	30,400	27,900	2,500	S	7,000	5,800	1,200
Other physical and related scientists	24,000	22,200	20,900	1,300	S	1,800	700	1,100
Postsecondary teachers	59,600	50,700	40,200	10,400	200	8,700	5,200	3,500
Social and related scientists	419,900	363,400	273,200	90,200	5,300	51,300	25,200	26,000
Economists	42,200	35,400	31,500	3,900	400	6,400	3,500	2,900
Political and related scientists	13,500	11,600	9,800	1,800	S	1,700	400	1,300
Psychologists	223,700	197,000	141,600	55,400	2,700	24,000	10,200	13,800
Sociologists and anthropologists	21,200	17,600	14,200	3,400	700	2,900	900	2,000
Other social and related scientists	15,800	13,600	11,500	2,100	600	1,600	800	700
Postsecondary teachers	103,500	88,100	64,600	23,600	600	14,700	9,400	5,300
Engineers	1,656,200	1,370,300	1,318,000	52,300	25,800	260,000	218,300	41,700
Aerospace and related engineers	93,700	67,400	65,200	2,200	1,800	24,400	22,000	2,400
Chemical engineers	101,100	79,900	77,100	2,700	1,900	19,300	16,400	3,000
Civil and architectural engineers	265,900	223,700	214,400	9,300	2,600	39,600	33,300	6,300
Electrical and related engineers	432,800	362,300	350,600	11,700	5,000	65,500	56,000	9,500
Industrial engineers	98,100	81,200	77,200	3,900	1,600	15,400	11,800	3,600
Mechanical engineers	317,400	265,800	257,900	7,900	5,500	46,100	40,300	5,800
Other engineers	309,400	258,700	249,800	8,900	7,200	43,500	33,300	10,300
Postsecondary teachers	37,900	31,400	25,800	5,600	200	6,200	5,300	900

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-10.

Individuals with S&E occupations, by highest degree attained, occupation, and employment status: 1999

Occupation	Total S&Es	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		Bachelor's						
All S&E occupations	2,350,500	1,994,400	1,870,600	123,800	32,700	323,300	223,200	100,100
Scientists	1,228,500	1,087,100	997,300	89,800	16,200	125,200	54,000	71,200
Computer and math scientists	804,900	740,500	700,600	39,900	9,500	54,900	25,200	29,700
Computer and information scientists	773,400	715,400	686,700	28,800	9,200	48,800	22,500	26,300
Mathematical scientists	16,400	12,400	9,900	2,500	S	3,700	2,300	S
Postsecondary teachers	15,100	12,700	4,000	8,700	S	2,400	S	2,000
Life and related scientists	166,500	135,500	120,400	15,100	1,700	29,200	8,400	20,900
Agricultural and food scientists	24,900	20,100	19,000	1,100	S	4,600	2,600	2,000
Biological scientists	107,700	87,900	80,900	7,000	S	19,200	3,300	15,900
Environmental life scientists	17,100	14,600	13,600	S	S	1,700	1,700	S
Postsecondary teachers	16,800	12,800	6,800	6,000	S	3,700	S	2,900
Physical and related scientists	172,700	139,600	127,400	12,200	2,900	30,200	18,700	11,500
Chemistry, except biochemistry	90,400	70,500	68,100	2,400	1,900	18,000	11,300	6,800
Earth scientists, geologists, oceanographers	43,200	38,000	34,700	3,300	S	4,400	3,200	1,300
Physicists and astronomers	10,800	7,200	6,100	1,100	S	3,400	2,900	500
Other physical and related scientists	14,100	13,100	13,000	S	S	1,000	S	S
Postsecondary teachers	14,200	10,900	5,500	5,400	S	3,300	S	2,300
Social and related scientists	84,400	71,400	48,900	22,500	2,000	11,000	1,700	9,200
Economists	14,500	11,800	10,300	1,500	S	2,500	S	1,000
Political and related scientists	6,500	5,800	4,800	1,000	S	S	S	S
Psychologists	38,100	32,100	23,300	8,800	1,200	4,700	S	4,700
Sociologists and anthropologists	9,100	6,900	5,800	1,100	S	1,600	S	S
Other social and related scientists	4,600	4,500	3,500	1,000	S	S	S	S
Postsecondary teachers	11,600	10,400	S	9,200	S	1,200	S	1,200
Engineers	1,122,000	907,400	873,300	34,000	16,600	198,000	169,200	28,800
Aerospace and related engineers	55,300	36,300	34,900	1,400	1,400	17,600	15,900	1,700
Chemical engineers	66,200	51,100	49,300	1,800	800	14,400	12,000	2,400
Civil and architectural engineers	195,600	160,800	154,600	6,200	1,500	33,200	28,200	5,000
Electrical and related engineers	288,800	233,500	225,500	8,100	3,100	52,200	45,800	6,400
Industrial engineers	76,400	62,700	59,600	3,100	1,400	12,300	9,900	2,400
Mechanical engineers	234,400	194,300	188,900	5,300	3,600	36,600	32,700	3,900
Other engineers	198,800	163,000	157,400	5,600	4,800	31,000	23,900	7,000
Postsecondary teachers	6,400	5,600	3,100	2,500	S	800	S	100

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-10.

Individuals with S&E occupations, by highest degree attained, occupation, and employment status: 1999

Occupation	Total S&Es	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		Master's						
All S&E occupations	1,188,100	1,032,100	921,500	110,600	17,300	138,800	90,800	48,000
Scientists	752,300	655,500	559,900	95,700	9,700	87,000	51,000	36,000
Computer and math scientists	393,700	354,100	323,200	30,900	4,700	34,900	22,900	12,000
Computer and information scientists	333,700	304,800	288,000	16,800	4,000	24,800	17,000	7,800
Mathematical scientists	19,900	16,000	14,000	2,000	S	3,400	1,700	1,700
Postsecondary teachers	40,200	33,300	21,300	12,000	S	6,700	4,200	2,500
Life and related scientists	86,700	72,500	64,500	8,100	1,300	12,900	6,600	6,200
Agricultural and food scientists	11,900	10,400	9,400	1,000	S	1,400	S	800
Biological scientists	50,800	42,700	39,700	3,100	500	7,600	3,400	4,200
Environmental life scientists	4,300	4,000	3,500	S	S	S	S	S
Postsecondary teachers	19,700	15,500	11,900	3,600	600	3,700	2,400	1,200
Physical and related scientists	88,500	73,000	63,800	9,100	1,400	14,100	9,600	4,500
Chemistry, except biochemistry	30,500	23,000	21,100	2,000	1,000	6,500	4,700	1,800
Earth scientists, geologists, oceanographers	28,600	24,300	22,200	2,000	400	3,900	2,700	1,200
Physicists and astronomers	10,200	8,500	7,800	700	S	1,800	1,300	500
Other physical and related scientists	7,800	7,300	6,300	1,100	S	500	S	S
Postsecondary teachers	11,400	9,800	6,500	3,300	S	1,500	700	800
Social and related scientists	183,400	155,900	108,400	47,500	2,300	25,200	11,900	13,300
Economists	18,000	15,200	13,100	2,000	S	2,700	900	1,700
Political and related scientists	5,100	4,200	3,500	800	S	700	S	600
Psychologists	118,100	102,400	70,400	32,000	1,100	14,500	7,500	7,000
Sociologists and anthropologists	7,500	6,900	5,100	1,800	S	S	S	S
Other social and related scientists	6,800	5,700	4,800	900	S	S	S	S
Postsecondary teachers	28,000	21,500	11,400	10,100	300	6,200	3,100	3,000
Engineers	435,900	376,500	361,700	14,900	7,600	51,800	39,800	12,000
Aerospace and related engineers	32,700	26,300	25,700	600	S	6,100	5,600	500
Chemical engineers	25,000	20,700	19,900	700	700	3,600	3,200	500
Civil and architectural engineers	64,300	57,200	54,600	2,700	900	6,100	4,800	1,300
Electrical and related engineers	123,100	109,400	106,100	3,200	1,600	12,000	9,000	3,000
Industrial engineers	20,700	17,400	16,600	800	S	3,100	1,900	1,200
Mechanical engineers	72,200	62,000	59,900	2,100	1,800	8,500	6,600	1,800
Other engineers	88,200	76,900	74,300	2,600	1,800	9,500	6,500	3,000
Postsecondary teachers	9,600	6,600	4,400	2,200	S	2,900	2,200	600

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-10.

Individuals with S&E occupations, by highest degree attained, occupation, and employment status: 1999

Occupation	Total S&Es	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		Doctorate						
All S&E occupations	547,800	484,100	447,100	37,000	5,800	57,900	48,000	9,900
Scientists	452,200	399,900	366,100	33,800	4,100	48,200	39,000	9,200
Computer and math scientists	72,800	67,100	63,000	4,100	500	5,300	4,400	900
Computer and information scientists	34,100	32,400	31,300	1,100	200	1,500	1,100	400
Mathematical scientists	8,900	7,900	7,400	500	100	900	700	200
Postsecondary teachers	29,900	26,800	24,300	2,500	200	2,900	2,600	300
Life and related scientists	137,500	121,100	115,300	5,800	1,200	15,200	12,000	3,200
Agricultural and food scientists	10,700	9,200	8,600	600	100	1,400	1,300	100
Biological scientists	78,900	70,000	66,900	3,000	900	8,100	5,500	2,600
Environmental life scientists	1,500	1,200	1,100	S	S	200	200	S
Postsecondary teachers	46,400	40,800	38,700	2,100	100	5,500	5,000	500
Physical and related scientists	99,000	84,900	80,500	4,400	1,500	12,700	11,000	1,700
Chemistry, except biochemistry	34,200	28,100	26,900	1,200	700	5,400	4,700	700
Earth scientists, geologists, oceanographers	11,900	10,400	9,800	600	300	1,300	1,000	200
Physicists and astronomers	16,800	14,700	14,000	700	S	1,900	1,600	300
Other physical and related scientists	2,000	1,800	1,700	100	S	200	200	S
Postsecondary teachers	34,000	29,800	28,100	1,700	200	4,000	3,500	500
Social and related scientists	142,800	126,900	107,300	19,600	900	15,000	11,600	3,300
Economists	9,400	8,100	7,700	400	S	1,200	1,000	200
Political and related scientists	1,700	1,400	1,400	S	S	300	300	S
Psychologists	62,900	58,000	43,900	14,000	400	4,500	2,700	1,800
Sociologists and anthropologists	4,600	3,700	3,200	500	S	800	700	100
Other social and related scientists	3,300	2,400	2,100	300	S	800	700	100
Postsecondary teachers	60,900	53,300	49,000	4,300	300	7,300	6,300	1,100
Engineers	95,600	84,200	81,000	3,200	1,700	9,700	9,000	700
Aerospace and related engineers	5,200	4,600	4,400	200	S	500	500	S
Chemical engineers	9,700	8,100	7,800	200	300	1,300	1,200	100
Civil and architectural engineers	5,400	5,100	4,700	400	S	200	200	S
Electrical and related engineers	19,900	18,400	18,000	400	300	1,300	1,200	100
Industrial engineers	1,100	1,000	1,000	S	S	S	S	S
Mechanical engineers	10,300	9,100	8,800	300	200	1,000	1,000	S
Other engineers	22,100	18,800	18,100	700	500	2,800	2,600	200
Postsecondary teachers	21,800	19,200	18,300	900	100	2,500	2,400	200

S = suppressed for reasons of confidentiality and/or data reliability; S&E = science and engineering; SESTAT = Scientists and Engineers Statistical Data System

^aIncludes professional degrees.

NOTE: For unemployed individuals, occupation is for their previous reported job.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

See text table 3-5 in Volume 1.

Appendix table 3-11.

Individuals with S&E occupations, by highest degree attained, occupation, and employment status: 1993

Occupation	Total S&Es	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		All degree levels ^a						
All S&E occupations	3,786,100	3,303,400	3,019,400	284,000	87,900	394,800	266,400	128,400
Scientists	2,140,900	1,912,300	1,691,400	220,900	38,600	190,000	93,800	96,200
Computer and math scientists	1,065,900	991,500	917,500	74,000	19,400	55,000	20,500	34,500
Computer and information scientists	926,000	870,000	825,600	44,400	16,900	39,200	12,700	26,500
Mathematical scientists	55,200	46,800	41,600	5,200	1,500	6,800	3,800	3,000
Postsecondary teachers	84,700	74,700	50,300	24,400	1,000	9,000	4,000	5,000
Life and related scientists	379,000	322,300	286,600	35,700	5,700	51,000	23,100	27,900
Agriculture and food scientists	52,500	44,600	40,500	4,100	800	7,100	4,400	2,700
Biological scientists	209,400	175,900	161,400	14,500	3,300	30,200	10,900	19,300
Environmental life scientists	28,200	24,800	22,500	2,300	300	3,000	2,000	1,100
Postsecondary teachers	88,900	77,000	62,100	14,900	1,300	10,600	5,800	4,800
Physical and related scientists	339,500	280,900	247,900	33,100	8,200	50,400	33,400	16,900
Chemists, except biochemists	142,600	114,200	107,300	6,900	3,400	25,000	16,400	8,600
Earth scientists, geologists, and oceanographers	83,300	68,700	61,700	7,100	2,500	12,100	8,100	4,000
Physicists and astronomers	40,900	34,900	30,000	4,900	1,000	5,100	3,600	1,500
Other physical and related scientists	20,500	17,700	16,600	1,100	600	2,200	1,700	500
Postsecondary teachers	52,200	45,500	32,300	13,200	700	6,000	3,700	2,300
Social and related scientists	356,600	317,600	239,500	78,100	5,300	33,700	16,900	16,900
Economists	37,000	31,100	27,100	4,000	900	5,100	2,900	2,200
Political and related scientists	10,000	8,600	7,000	1,600	400	1,000	500	400
Psychologists	167,500	150,800	112,400	38,300	1,600	15,100	6,400	8,700
Sociologists and anthropologists	19,100	15,100	11,700	3,400	900	3,100	700	2,400
Other social and related scientists	25,300	24,000	18,400	5,500	300	1,000	500	600
Postsecondary teachers	97,700	88,100	62,800	25,300	1,100	8,400	5,900	2,600
Engineers	1,645,100	1,391,100	1,328,000	63,100	49,300	204,800	172,600	32,200
Aerospace and related engineers	109,000	84,100	81,100	2,900	4,300	20,700	19,100	1,600
Chemical engineers	96,300	77,700	74,300	3,500	2,100	16,400	13,200	3,200
Civil and architectural engineers	223,500	191,500	180,500	11,000	5,400	26,500	22,500	4,100
Electrical and related engineers	422,600	362,500	350,300	12,200	12,900	47,200	39,900	7,300
Industrial engineers	83,700	70,200	67,700	2,500	2,400	11,000	9,100	1,900
Mechanical engineers	302,900	253,300	244,500	8,800	10,200	39,400	35,400	4,000
Other engineers	368,400	318,600	303,000	15,600	11,200	38,600	29,800	8,800
Postsecondary teachers	38,800	33,100	26,500	6,600	800	4,900	3,600	1,300

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-11.
Individuals with S&E occupations, by highest degree attained, occupation, and employment status: 1993

Occupation	Total S&Es	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		Bachelor's						
All S&E occupations	2,293,600	1,980,300	1,837,600	142,700	56,100	257,200	177,500	79,700
Scientists	1,122,700	1,007,000	904,700	102,300	18,400	97,300	41,400	55,900
Computer and math scientists	720,300	676,200	630,900	45,300	10,300	33,800	10,400	23,400
Computer and information scientists	674,300	637,300	605,100	32,200	9,900	27,100	7,800	19,300
Mathematical scientists	24,900	21,200	18,800	2,400	S	3,700	1,900	1,800
Postsecondary teachers	21,200	17,800	7,000	10,800	400	3,000	S	2,300
Life and related scientists	159,900	131,600	113,800	17,800	2,600	25,700	8,700	17,000
Agricultural and food scientists	31,200	27,000	24,700	2,300	400	3,700	2,100	1,600
Biological scientists	90,800	72,300	65,800	6,500	1,500	17,000	4,200	12,800
Environmental life scientists	20,200	18,000	16,500	1,500	S	2,000	1,400	S
Postsecondary teachers	17,700	14,400	6,800	7,500	S	2,900	1,000	2,000
Physical and related scientists	163,200	130,700	114,200	16,400	3,300	29,200	20,000	9,300
Chemistry, except biochemistry	85,000	66,500	63,100	3,400	1,700	16,700	10,800	5,900
Earth scientists, geologists, and oceanographers	43,200	35,100	31,700	3,400	800	7,300	5,700	1,600
Physicists and astronomers	11,000	8,900	7,400	1,500	200	1,800	1,400	500
Other physical and related scientists	11,200	9,200	8,900	300	S	1,600	1,400	S
Postsecondary teachers	12,900	11,000	3,100	7,800	200	1,700	600	1,100
Social and related scientists	79,300	68,500	45,800	22,700	2,200	8,600	2,400	6,200
Economists	13,400	10,800	9,100	1,700	S	2,200	1,500	700
Political and related scientists	5,900	5,400	4,100	1,400	S	S	S	S
Psychologists	30,000	25,800	18,000	7,900	600	3,600	S	3,200
Sociologists and anthropologists	7,600	5,700	4,400	1,300	S	1,300	S	1,300
Other social and related scientists	9,300	8,700	7,200	1,500	S	400	S	S
Postsecondary teachers	13,100	12,100	3,100	9,000	S	S	S	S
Engineers	1,170,900	973,300	932,900	40,400	37,700	159,900	136,100	23,800
Aerospace and related engineers	73,900	54,200	52,500	1,700	3,200	16,400	15,200	1,200
Chemical engineers	64,300	49,900	48,500	1,500	1,700	12,600	9,900	2,700
Civil and architectural engineers	165,700	139,700	131,700	8,000	4,300	21,700	18,400	3,300
Electrical and related engineers	298,900	251,800	243,800	8,000	9,900	37,100	32,100	5,100
Industrial engineers	65,300	54,700	52,700	2,000	1,600	9,000	7,400	1,600
Mechanical engineers	234,200	194,400	188,200	6,100	7,500	32,300	29,200	3,100
Other engineers	260,700	222,300	212,000	10,300	9,100	29,300	23,300	6,000
Postsecondary teachers	8,000	6,200	3,500	2,800	400	1,400	600	800

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-11.

Individuals with S&E occupations, by highest degree attained, occupation, and employment status: 1993

Occupation	Total S&Es	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		Master's						
All S&E occupations	1,013,600	891,300	781,100	110,200	25,200	97,200	57,200	40,000
Scientists	615,600	541,400	450,500	90,900	15,000	59,200	26,500	32,700
Computer and math scientists	290,100	263,600	237,900	25,700	8,300	18,200	7,700	10,500
Computer and information scientists	230,300	212,400	201,200	11,200	6,400	11,500	4,400	7,100
Mathematical scientists	22,000	18,200	15,900	2,300	1,400	2,500	1,300	1,100
Postsecondary teachers	37,700	33,000	20,800	12,200	500	4,200	2,000	2,300
Life and related scientists	85,100	70,400	59,200	11,200	1,800	12,900	5,300	7,600
Agricultural and food scientists	11,700	9,700	8,500	1,200	S	1,800	1,000	800
Biological scientists	44,400	37,100	33,000	4,100	900	6,500	2,300	4,100
Environmental life scientists	6,800	6,000	5,300	700	S	800	S	S
Postsecondary teachers	22,100	17,700	12,400	5,200	600	3,900	1,600	2,200
Physical and related scientists	87,400	72,600	60,100	12,400	2,900	11,900	6,000	6,000
Chemistry, except biochemistry	26,700	21,100	18,900	2,300	800	4,800	2,700	2,100
Earth scientists, geologists, and oceanographers	28,800	23,900	20,700	3,100	1,400	3,500	1,500	2,000
Physicists and astronomers	13,000	11,000	8,400	2,600	200	1,800	1,100	800
Other physical and related scientists	6,900	6,400	5,800	600	200	300	S	200
Postsecondary teachers	12,000	10,200	6,400	3,800	400	1,500	600	900
Social and related scientists	153,100	134,900	93,300	41,600	2,000	16,200	7,600	8,600
Economists	15,900	13,500	11,600	1,800	300	2,100	700	1,400
Political and related scientists	2,400	1,900	1,800	S	S	S	S	S
Psychologists	85,600	76,400	54,900	21,500	700	8,600	4,100	4,400
Sociologists and anthropologists	7,500	6,300	4,600	1,700	200	1,000	S	800
Other social and related scientists	11,700	11,200	8,000	3,300	S	400	S	S
Postsecondary teachers	30,000	25,600	12,300	13,300	600	3,800	2,300	1,500
Engineers	398,000	349,900	330,600	19,200	10,200	38,000	30,700	7,300
Aerospace and related engineers	31,100	26,200	25,200	1,000	900	4,000	3,700	400
Chemical engineers	24,800	21,800	20,100	1,700	300	2,800	2,400	400
Civil and architectural engineers	53,300	47,800	45,000	2,800	1,100	4,400	3,700	700
Electrical and related engineers	110,200	98,500	94,800	3,700	2,700	9,000	6,900	2,100
Industrial engineers	17,700	15,100	14,500	600	700	2,000	1,700	300
Mechanical engineers	60,900	51,800	49,600	2,200	2,600	6,500	5,600	900
Other engineers	88,200	79,600	75,400	4,200	1,700	6,900	4,700	2,200
Postsecondary teachers	11,800	9,100	6,000	3,100	S	2,300	1,900	400

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-11.
Individuals with S&E occupations, by highest degree attained, occupation, and employment status: 1993

Occupation	Total S&Es	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		Doctorate						
All S&E occupations	439,400	395,600	368,500	27,100	6,500	37,300	29,700	7,700
Scientists	367,100	330,500	306,700	23,800	5,200	31,400	24,400	6,900
Computer and math scientists	52,400	48,700	45,800	2,900	700	2,900	2,300	700
Computer and information scientists	18,500	17,500	16,600	900	500	500	400	100
Mathematical scientists	8,200	7,400	6,900	500	200	700	500	200
Postsecondary teachers	25,600	23,800	22,300	1,500	100	1,700	1,300	400
Life and related scientists	111,400	98,100	93,600	4,500	1,400	11,900	9,000	2,900
Agricultural and food scientists	9,500	7,800	7,300	500	200	1,500	1,400	100
Biological scientists	63,800	56,400	53,800	2,600	1,000	6,500	4,300	2,100
Environmental life scientists	1,100	900	800	100	S	300	200	S
Postsecondary teachers	36,900	33,000	31,700	1,300	300	3,700	3,100	600
Physical and related scientists	87,800	77,000	72,900	4,100	2,000	8,800	7,100	1,700
Chemistry, except biochemistry	30,200	25,800	24,700	1,100	900	3,500	2,900	600
Earth scientists, geologists, and oceanographers	11,400	9,800	9,300	500	300	1,200	900	400
Physicists and astronomers	17,000	15,000	14,200	800	600	1,400	1,100	300
Other physical and related scientists	2,300	2,000	1,900	100	S	300	200	S
Postsecondary teachers	26,900	24,300	22,800	1,500	200	2,400	2,000	300
Social and related scientists	115,600	106,700	94,400	12,400	1,100	7,800	6,000	1,800
Economists	7,100	6,300	5,800	500	200	700	700	S
Political and related scientists	1,600	1,200	1,100	100	S	400	400	S
Psychologists	46,700	44,300	36,300	8,100	300	2,100	1,300	800
Sociologists and anthropologists	3,900	3,100	2,700	400	100	800	600	200
Other social and related scientists	3,300	3,000	2,600	300	S	300	200	100
Postsecondary teachers	52,900	48,900	45,900	3,000	400	3,600	2,900	600
Engineers	72,300	65,000	61,800	3,200	1,300	6,000	5,200	700
Aerospace and related engineers	4,000	3,600	3,400	100	200	200	200	100
Chemical engineers	7,100	6,000	5,700	300	100	900	800	100
Civil and architectural engineers	3,600	3,200	3,000	200	S	400	300	S
Electrical and related engineers	12,900	11,600	11,100	500	300	1,000	900	200
Industrial engineers	600	400	400	S	S	100	100	S
Mechanical engineers	7,100	6,500	6,200	200	100	600	500	S
Other engineers	18,100	16,000	14,900	1,200	400	1,700	1,500	200
Postsecondary teachers	18,900	17,700	17,100	700	100	1,000	1,000	100

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: For unemployed individuals, occupation is for their previous reported job.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

See text table 3-5 in Volume 1.

Appendix table 3-12.

Employed individuals in S&E occupations, by highest degree attained, occupation, and employment sector: 1999

Occupation	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
All degree levels^a											
All S&E occupations	3,540,800	2,482,400	2,263,300	105,200	114,000	608,500	496,400	112,100	449,900	241,100	208,800
Scientists	2,170,500	1,373,600	1,197,400	80,200	96,000	541,800	434,200	107,600	255,100	137,300	117,800
Computer and math scientists	1,167,400	943,800	886,800	21,500	35,600	132,200	95,000	37,300	91,300	52,600	38,600
Computer and information scientists	1,058,100	925,900	871,900	21,200	32,900	52,100	40,000	12,100	80,100	44,300	35,800
Mathematical scientists	36,200	17,300	14,300	300	2,700	7,800	7,500	400	11,100	8,400	2,700
Postsecondary teachers	73,000	600	600	S	S	72,300	47,500	24,800	S	S	S
Life and related scientists	341,900	113,400	92,600	8,000	12,800	163,300	148,900	14,400	65,300	36,700	28,500
Agricultural and food scientists	39,700	26,000	22,800	2,600	600	6,100	5,300	700	7,700	4,800	2,900
Biological scientists	206,500	80,900	66,000	3,700	11,200	81,200	79,100	2,100	44,400	24,600	19,900
Environmental life scientists	19,800	5,500	3,400	1,600	400	1,200	700	S	13,100	7,400	5,700
Postsecondary teachers	75,800	1,100	S	S	S	74,800	63,800	11,000	S	S	S
Physical and related scientists	297,900	161,200	148,800	6,300	6,100	82,400	73,200	9,100	54,300	31,300	23,000
Chemistry, except biochemistry	121,700	94,400	90,900	1,100	2,500	11,400	11,400	S	15,900	6,000	9,900
Earth scientists, geologists, and oceanographers	72,800	43,100	38,700	3,500	900	9,100	8,300	700	20,700	14,100	6,600
Physicists and astronomers	30,400	13,600	11,100	200	2,400	10,000	9,900	100	6,800	5,900	900
Other physical and related scientists	22,200	9,900	8,200	1,500	300	1,600	1,600	S	10,700	5,000	5,700
Postsecondary teachers	50,700	S	S	S	S	50,300	42,000	8,300	200	S	S
Social and related scientists	363,400	155,200	69,200	44,500	41,600	163,900	117,100	46,800	44,300	16,600	27,700
Economists	35,400	21,800	17,400	2,100	2,300	2,200	2,200	S	11,400	6,600	4,800
Political and related scientists	11,600	4,500	900	900	2,600	2,600	2,600	S	4,600	2,500	2,000
Psychologists	197,000	116,000	45,100	39,800	31,100	59,400	23,000	36,400	21,600	4,400	17,200
Sociologists and anthropologists ..	17,600	5,500	2,800	300	2,400	7,300	6,900	300	4,800	1,900	2,900
Other social and related scientists	13,600	7,100	2,900	1,100	3,100	4,600	4,000	700	1,900	1,200	700
Postsecondary teachers	88,100	300	S	S	S	87,900	78,400	9,500	S	S	S
Engineers	1,370,300	1,108,800	1,065,900	25,000	18,000	66,700	62,100	4,500	194,800	103,800	90,900
Aerospace and related engineers	67,400	50,800	49,900	300	600	2,500	2,500	S	14,100	14,000	S
Chemical engineers	79,900	74,900	72,800	1,300	800	2,000	1,900	S	3,000	2,600	S
Civil and architectural engineers	223,700	142,400	132,700	7,600	2,000	3,600	3,400	S	77,700	17,200	60,500
Electrical and related engineers	362,300	310,300	300,600	4,300	5,400	10,700	9,700	1,000	41,300	33,300	8,000
Industrial engineers	81,200	75,900	73,200	1,100	1,500	1,500	1,500	S	3,800	3,100	700
Mechanical engineers	265,800	245,200	237,100	5,400	2,700	5,300	5,200	S	15,300	12,100	3,200
Other engineers	258,700	209,400	199,600	4,900	4,900	9,700	9,600	200	39,600	21,500	18,100
Postsecondary teachers	31,400	S	S	S	S	31,400	28,300	3,100	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-12.

Employed individuals in S&E occupations, by highest degree attained, occupation, and employment sector: 1999

Occupation	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
Bachelor's											
All S&E occupations	1,994,400	1,555,000	1,465,300	37,200	52,500	171,800	142,500	29,300	267,600	130,200	137,500
Scientists	1,087,100	802,300	738,000	22,000	42,300	150,400	123,500	26,900	134,300	66,100	68,200
Computer and math scientists	740,500	630,000	592,300	13,300	24,400	51,000	36,100	14,900	59,500	31,900	27,600
Computer and information scientists	715,400	624,800	587,900	13,100	23,800	35,600	26,100	9,500	55,000	28,600	26,400
Mathematical scientists	12,400	4,900	4,200	S	S	3,000	2,800	S	4,500	3,300	1,200
Postsecondary teachers	12,700	S	S	S	S	12,500	7,300	5,200	S	S	S
Life and related scientists	135,500	55,600	47,500	3,800	4,300	47,300	43,000	4,300	32,500	15,900	16,700
Agricultural and food scientists	20,100	15,500	13,900	S	S	1,200	1,200	S	3,400	2,500	900
Biological scientists	87,900	36,600	31,300	1,700	3,700	32,700	31,500	1,200	18,600	7,300	11,300
Environmental life scientists	14,600	3,300	2,000	S	S	S	S	S	10,500	6,100	4,400
Postsecondary teachers	12,800	S	S	S	S	12,500	10,000	2,500	S	S	S
Physical and related scientists	139,600	87,200	82,400	2,800	2,000	22,300	21,200	1,100	30,200	14,000	16,200
Chemistry, except biochemistry	70,500	55,000	53,300	S	1,500	5,300	5,300	S	10,100	2,700	7,500
Earth scientists, geologists, and oceanographers	38,000	24,000	21,800	2,000	S	2,800	2,800	S	11,100	7,300	3,800
Physicists and astronomers	7,200	2,400	2,200	S	S	3,400	3,400	S	1,500	1,100	S
Other physical and related scientists	13,100	5,700	5,100	S	S	S	S	S	7,300	2,800	4,500
Postsecondary teachers	10,900	S	S	S	S	10,700	9,700	S	S	S	S
Social and related scientists	71,400	29,600	15,800	2,200	11,600	29,800	23,100	6,700	12,100	4,300	7,800
Economists	11,800	6,200	5,400	S	S	700	700	S	4,900	1,600	3,300
Political and related scientists	5,800	2,000	S	S	1,000	1,000	1,000	S	2,800	1,400	1,300
Psychologists	32,100	16,500	7,900	S	7,800	13,000	7,800	5,200	2,700	S	2,300
Sociologists and anthropologists ..	6,900	2,400	S	S	S	3,100	3,000	S	S	S	S
Other social and related scientists	4,500	2,500	S	S	1,600	1,700	1,400	S	S	S	S
Postsecondary teachers	10,400	S	S	S	S	10,400	9,200	S	S	S	S
Engineers	907,400	752,700	727,200	15,200	10,300	21,400	19,000	2,400	133,300	64,100	69,300
Aerospace and related engineers	36,300	29,000	28,700	S	S	600	600	S	6,800	6,800	S
Chemical engineers	51,100	47,800	46,800	S	S	1,200	1,200	S	2,100	1,700	S
Civil and architectural engineers	160,800	98,100	92,800	4,000	1,400	1,900	1,800	S	60,800	11,700	49,100
Electrical and related engineers	233,500	202,100	196,300	2,700	3,100	4,400	3,600	800	27,100	20,400	6,700
Industrial engineers	62,700	58,600	56,800	S	700	1,200	1,200	S	2,900	2,400	S
Mechanical engineers	194,300	181,000	175,600	3,800	1,600	2,300	2,300	S	11,000	8,700	2,300
Other engineers	163,000	136,000	130,200	2,700	3,100	4,300	4,200	S	22,700	12,500	10,200
Postsecondary teachers	5,600	S	S	S	S	5,500	4,200	1,300	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-12.

Employed individuals in S&E occupations, by highest degree attained, occupation, and employment sector: 1999

Occupation	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
Master's											
All S&E occupations	1,032,100	719,400	639,100	41,200	39,100	178,400	111,800	66,600	134,300	75,500	58,800
Scientists	655,500	415,600	348,300	33,300	34,000	159,200	94,100	65,100	80,800	42,500	38,300
Computer and math scientists	354,100	276,400	260,300	7,000	9,000	50,200	29,900	20,300	27,600	17,800	9,800
Computer and information scientists	304,800	268,400	253,500	7,000	7,900	13,600	11,200	2,400	22,800	14,100	8,800
Mathematical scientists	16,000	8,000	6,800	S	1,200	3,300	3,300	S	4,700	3,700	1,000
Postsecondary teachers	33,300	S	S	S	S	33,300	15,500	17,800	S	S	S
Life and related scientists	72,500	25,000	19,100	2,100	3,900	27,800	20,900	6,900	19,700	9,800	9,900
Agricultural and food scientists	10,400	5,600	4,400	1,200	S	2,200	1,500	S	2,600	700	1,900
Biological scientists	42,700	17,000	13,300	S	3,200	10,900	10,700	S	14,800	8,100	6,800
Environmental life scientists	4,000	1,700	1,200	S	S	S	S	S	2,200	1,000	1,200
Postsecondary teachers	15,500	S	S	S	S	14,800	8,700	6,100	S	S	S
Physical and related scientists	73,000	40,100	36,200	2,300	1,600	19,400	14,200	5,200	13,500	8,200	5,300
Chemistry, except biochemistry	23,000	16,800	16,100	S	S	3,100	3,100	S	3,100	1,400	1,800
Earth scientists, geologists, and oceanographers	24,300	15,400	14,100	1,200	S	2,900	2,700	S	5,900	3,700	2,200
Physicists and astronomers	8,500	4,700	3,700	S	1,000	2,300	2,300	S	1,500	1,300	S
Other physical and related scientists	7,300	3,200	2,200	800	S	1,200	1,200	S	2,900	1,800	1,200
Postsecondary teachers	9,800	S	S	S	S	9,800	4,900	4,900	S	S	S
Social and related scientists	155,900	74,100	32,700	21,900	19,400	61,800	29,100	32,700	20,000	6,700	13,300
Economists	15,200	10,300	7,800	1,100	1,400	300	300	S	4,600	3,300	1,300
Political and related scientists	4,200	2,000	S	S	1,400	900	900	S	1,300	600	S
Psychologists	102,400	57,300	22,400	19,900	15,000	34,600	7,700	26,900	10,600	1,400	9,200
Sociologists and anthropologists	6,900	1,800	900	S	1,000	2,500	2,400	S	2,600	S	1,700
Other social and related scientists	5,700	2,700	1,300	S	700	2,000	1,800	S	1,100	S	S
Postsecondary teachers	21,500	S	S	S	S	21,500	16,000	5,500	S	S	S
Engineers	376,500	303,800	290,800	7,900	5,100	19,200	17,700	1,500	53,500	33,000	20,500
Aerospace and related engineers	26,300	18,600	18,400	S	200	1,500	1,500	S	6,200	6,200	S
Chemical engineers	20,700	19,800	19,200	S	300	300	300	S	500	500	S
Civil and architectural engineers	57,200	40,300	36,700	3,300	S	1,100	1,100	S	15,800	5,000	10,800
Electrical and related engineers	109,400	92,500	89,700	1,100	1,700	5,000	4,900	S	11,900	10,600	1,300
Industrial engineers	17,400	16,300	15,600	S	800	300	300	S	800	600	S
Mechanical engineers	62,000	56,600	54,600	1,300	700	1,800	1,800	S	3,600	2,800	800
Other engineers	76,900	59,600	56,600	1,800	1,200	2,600	2,600	S	14,700	7,200	7,500
Postsecondary teachers	6,600	S	S	S	S	6,600	5,200	1,400	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-12.

Employed individuals in S&E occupations, by highest degree attained, occupation, and employment sector: 1999

Occupation	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
									Total	Federal	
Doctorate									Total	Federal	
All S&E occupations	484,100	195,000	150,000	24,700	20,300	244,300	229,900	14,400	44,800	32,900	11,900
Scientists	399,900	144,000	103,200	23,000	17,700	218,300	204,400	13,800	37,700	26,900	10,800
Computer and math scientists	67,100	32,600	29,400	1,100	2,000	30,700	28,700	2,000	3,800	2,700	1,100
Computer and information scientists	32,400	27,800	25,800	900	1,100	2,800	2,700	S	1,800	1,300	500
Mathematical scientists	7,900	4,400	3,200	200	900	1,600	1,400	100	1,900	1,400	500
Postsecondary teachers	26,800	300	300	S	S	26,300	24,500	1,800	S	S	S
Life and related scientists	121,100	30,400	24,200	1,900	4,300	78,500	75,600	2,900	12,200	10,200	2,000
Agricultural and food scientists	9,200	4,900	4,400	400	100	2,700	2,600	S	1,700	1,600	100
Biological scientists	70,000	25,000	19,600	1,400	4,000	34,800	34,200	600	10,100	8,300	1,800
Environmental life scientists	1,200	400	200	S	200	400	400	S	400	300	S
Postsecondary teachers	40,800	S	S	S	S	40,700	38,300	2,300	S	S	S
Physical and related scientists	84,900	33,800	30,200	1,100	2,500	40,600	37,800	2,800	10,400	8,800	1,600
Chemistry, except biochemistry	28,100	22,500	21,400	500	600	3,000	2,900	S	2,600	1,900	700
Earth scientists, geologists, and oceanographers	10,400	3,600	2,800	300	500	3,300	2,900	400	3,400	2,800	600
Physicists and astronomers	14,700	6,600	5,200	200	1,200	4,300	4,200	S	3,800	3,600	300
Other physical and related scientists	1,800	1,000	800	100	S	300	300	S	500	500	S
Postsecondary teachers	29,800	S	S	S	S	29,700	27,400	2,300	S	S	S
Social and related scientists	126,900	47,100	19,300	18,800	8,900	68,500	62,300	6,100	11,300	5,200	6,100
Economists	8,100	5,000	3,900	400	700	1,200	1,200	S	1,900	1,700	300
Political and related scientists	1,400	500	200	S	200	600	600	S	300	300	S
Psychologists	58,000	39,200	14,400	17,500	7,300	11,100	7,500	3,500	7,700	2,500	5,200
Sociologists and anthropologists	3,700	1,300	600	300	400	1,600	1,500	100	900	500	400
Other social and related scientists	2,400	1,000	300	300	300	1,000	700	S	500	300	200
Postsecondary teachers	53,300	300	S	S	S	53,000	50,700	2,200	S	S	S
Engineers	84,200	51,000	46,700	1,700	2,500	26,100	25,500	600	7,100	5,900	1,200
Aerospace and related engineers	4,600	3,200	2,900	S	300	400	400	S	900	900	S
Chemical engineers	8,100	7,200	6,700	200	300	500	500	S	400	400	S
Civil and architectural engineers	5,100	3,400	2,700	400	400	600	600	S	1,100	500	700
Electrical and related engineers	18,400	15,300	14,100	500	700	1,300	1,200	S	1,800	1,800	S
Industrial engineers	1,000	900	800	S	S	S	S	S	100	100	S
Mechanical engineers	9,100	7,300	6,800	100	300	1,200	1,200	S	600	500	S
Other engineers	18,800	13,800	12,700	400	600	2,800	2,700	S	2,200	1,800	400
Postsecondary teachers	19,200	S	S	S	S	19,200	18,800	400	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-13.

Employed individuals with S&E highest degree, by highest degree attained, field of highest degree, and employment sector: 1999

Field of highest degree	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/university	Other	Total	Federal	State/local
				All degree levels ^a							
All S&E degree fields	7,980,100	5,545,400	4,657,400	432,300	455,700	1,379,100	701,700	677,400	1,055,600	450,600	605,000
Sciences	6,043,700	3,945,200	3,167,800	353,400	423,900	1,279,100	621,000	658,200	819,400	319,200	500,200
Computer and math sciences	1,045,800	804,100	732,600	37,000	34,600	164,100	66,600	97,500	77,600	46,600	31,000
Computer and information sciences	586,500	506,200	472,700	16,800	16,600	40,900	25,100	15,900	39,400	25,300	14,200
Mathematical sciences	459,300	298,000	259,900	20,100	18,000	123,200	41,500	81,700	38,100	21,400	16,800
Life and related sciences	1,287,700	768,700	603,900	78,400	86,500	345,200	219,700	125,500	173,800	78,800	95,000
Agricultural and food sciences	230,400	167,800	128,100	33,400	6,300	35,800	23,400	12,500	26,700	13,500	13,300
Biological sciences	955,300	540,600	426,500	39,600	74,500	295,300	189,400	105,900	119,400	53,700	65,700
Environmental life sciences	102,100	60,300	49,400	5,300	5,700	14,100	7,000	7,100	27,600	11,600	16,000
Physical and related sciences	596,400	398,400	352,500	29,000	17,000	124,500	90,000	34,500	73,500	42,400	31,100
Chemistry, except biochemistry	276,200	195,100	175,000	11,900	8,300	55,800	41,000	14,800	25,300	12,000	13,200
Earth science, geology, and oceanography	152,800	98,200	86,900	8,700	2,500	27,000	16,600	10,400	27,600	14,500	13,100
Physics and astronomy	144,000	90,400	78,900	6,500	5,000	38,400	30,900	7,600	15,200	13,000	2,200
Other	23,500	14,700	11,600	1,900	1,200	3,300	1,500	1,800	5,400	2,800	2,600
Social and related sciences	3,088,400	1,957,800	1,465,300	208,100	284,400	638,900	243,900	394,900	491,700	150,700	341,000
Economics	406,500	320,300	267,300	37,800	15,200	43,500	27,800	15,600	42,700	26,000	16,700
Political and related sciences	567,000	394,200	325,000	34,200	35,000	72,900	34,300	38,600	99,900	44,600	55,300
Psychology	1,166,100	701,000	475,200	84,600	141,200	297,600	95,800	201,800	167,600	37,800	129,800
Sociology and anthropology	592,700	343,900	250,800	30,100	63,000	126,300	55,100	71,300	122,500	24,700	97,700
Other	356,100	198,400	146,900	21,400	30,100	98,600	30,900	67,600	59,100	17,600	41,400
Engineering	1,935,800	1,599,700	1,489,100	78,900	31,700	100,000	80,800	19,200	236,200	131,400	104,800
Aerospace and related engineering	76,300	59,900	54,900	3,600	1,400	4,800	3,900	900	11,700	10,700	900
Chemical engineering	147,700	130,200	126,500	1,700	2,100	6,200	5,800	500	11,200	6,900	4,300
Civil and architectural engineering	330,200	230,800	208,000	18,900	3,900	13,100	11,100	2,100	86,300	24,300	62,000
Electrical and related engineering	587,000	507,000	479,900	18,100	9,000	29,900	24,600	5,200	50,100	38,700	11,400
Industrial engineering	106,200	91,700	80,400	8,500	2,900	6,000	3,000	3,000	8,500	6,700	1,800
Mechanical engineering	386,000	338,700	319,200	13,900	5,700	14,500	11,800	2,700	32,700	21,100	11,600
Other	302,500	241,300	220,100	14,300	6,800	25,400	20,500	4,900	35,700	23,100	12,700

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-13.

Employed individuals with S&E highest degree, by highest degree attained, field of highest degree, and employment sector: 1999

Field of highest degree	Employed S&Es, total	Business/industry				Educational			Government		
		Total	Profit	Self-employed		Four-year college/university	Other	Total	Federal	State/local	
				Nonprofit	Bachelor's						
Bachelor's											
All S&E degree fields	5,866,100	4,312,700	3,654,300	323,800	334,500	762,800	305,400	457,300	790,700	314,100	476,500
Sciences	4,486,100	3,148,800	2,571,400	262,600	314,800	718,000	275,500	442,400	619,400	225,300	394,100
Computer and math sciences	742,700	595,500	539,600	29,100	26,800	89,100	23,700	65,400	58,000	32,300	25,700
Computer and information sciences	413,500	364,000	338,100	13,300	12,600	20,800	11,400	9,400	28,700	17,300	11,400
Mathematical sciences	329,200	231,500	201,600	15,800	14,200	68,300	12,300	56,000	29,300	15,000	14,300
Life and related sciences	947,000	631,000	501,800	62,600	66,500	190,000	101,700	88,200	126,100	50,200	75,800
Agricultural and food sciences	182,300	143,100	109,200	29,300	4,600	18,100	9,600	8,500	21,100	10,200	10,900
Biological sciences	686,000	438,000	351,300	28,600	58,000	163,200	88,600	74,600	84,800	32,500	52,300
Environmental life sciences	78,700	49,900	41,300	4,800	3,900	8,700	3,500	5,200	20,100	7,500	12,600
Physical and related sciences	360,500	264,800	234,500	19,700	10,600	51,300	32,100	19,200	44,400	20,600	23,800
Chemistry, except biochemistry	175,100	130,500	116,000	9,300	5,200	26,800	18,500	8,300	17,800	7,200	10,600
Earth science, geology, and oceanography	101,800	72,100	64,500	5,900	1,700	10,900	5,000	5,900	18,800	8,900	10,000
Physics and astronomy	66,900	49,800	44,400	2,700	2,700	11,800	8,300	3,500	5,300	3,800	1,500
Other	16,600	12,300	9,600	1,800	S	1,800	300	1,500	2,500	800	1,700
Social and related sciences	2,415,500	1,643,600	1,284,000	150,100	209,500	383,300	117,400	265,900	388,600	121,700	267,000
Economics	340,300	284,900	238,200	34,300	12,400	22,800	10,900	11,900	32,600	20,400	12,200
Political and related sciences	482,900	350,100	295,600	27,800	26,700	47,800	15,700	32,100	85,000	37,100	47,900
Psychology	794,500	525,400	387,300	44,700	93,400	154,000	45,500	108,400	115,200	29,000	86,200
Sociology and anthropology	525,200	319,600	236,000	27,300	56,300	95,100	31,700	63,400	110,500	21,400	89,100
Other	272,600	163,600	126,800	16,100	20,700	63,700	13,600	50,100	45,400	13,800	31,600
Engineering	1,379,400	1,163,300	1,082,300	61,300	19,800	44,800	29,900	14,900	171,300	88,900	82,400
Aerospace and related engineering	53,600	43,200	40,000	2,700	500	2,300	1,700	600	8,000	7,600	S
Chemical engineering	112,000	100,000	97,600	900	1,500	3,100	2,700	400	9,000	5,300	3,700
Civil and architectural engineering	247,000	173,700	157,700	14,000	2,100	6,400	5,000	1,500	66,800	17,600	49,200
Electrical and related engineering	407,400	356,900	336,800	13,900	6,200	14,000	9,400	4,600	36,500	27,000	9,400
Industrial engineering	79,500	70,900	61,500	7,700	1,700	3,100	600	2,500	5,400	4,400	1,000
Mechanical engineering	304,200	270,700	254,500	12,000	4,200	6,400	4,700	1,700	27,000	16,500	10,600
Other	175,800	147,800	134,200	9,900	3,700	9,500	5,900	3,600	18,500	10,500	8,100

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-13.

Employed individuals with S&E highest degree, by highest degree attained, field of highest degree, and employment sector: 1999

Field of highest degree	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/university	Other	Total	Federal	State/local
							Master's	Other			
All S&E degree fields	1,491,200	954,600	790,600	73,900	90,100	329,600	133,900	195,700	207,000	95,700	111,300
Sciences	1,040,400	585,600	445,100	59,100	81,400	304,500	111,900	192,600	150,200	60,100	90,100
Computer and math sciences	262,600	192,700	178,700	7,100	6,900	52,600	21,400	31,200	17,200	12,300	4,900
Computer and information sciences	160,900	135,500	128,500	3,300	3,800	15,700	9,300	6,300	9,700	7,100	2,600
Mathematical sciences	101,700	57,200	50,200	3,800	3,200	37,000	12,100	24,900	7,500	5,200	2,300
Life and related sciences	164,100	75,400	55,400	9,200	10,800	58,600	27,500	31,100	30,200	15,200	15,000
Agricultural and food sciences	30,100	17,000	12,500	3,400	1,100	9,200	5,800	3,500	3,800	1,800	1,900
Biological sciences	116,200	49,400	35,900	5,300	8,100	45,900	20,100	25,800	20,900	10,600	10,300
Environmental life sciences	17,900	9,000	7,000	400	1,600	3,400	1,600	1,800	5,500	2,800	2,800
Physical and related sciences	109,200	67,300	58,800	6,300	2,200	25,600	14,500	11,100	16,200	11,000	5,200
Chemistry, except biochemistry	37,400	24,600	22,200	1,100	1,400	9,400	4,900	4,500	3,400	1,800	1,600
Earth science, geology, and oceanography	34,200	21,400	18,800	2,400	S	7,100	3,500	3,600	5,700	3,100	2,600
Physics and astronomy	32,500	19,600	16,300	2,900	400	8,400	5,600	2,800	4,500	4,300	S
Other	5,100	1,800	1,600	S	S	800	S	200	2,500	1,700	800
Social and related sciences	499,800	248,000	150,200	36,500	61,300	165,600	48,400	117,200	86,200	21,400	64,800
Economics	43,700	28,300	23,800	2,500	2,000	7,800	4,300	3,500	7,600	3,500	4,100
Political and related sciences	67,400	40,700	27,700	5,600	7,500	13,500	7,700	5,800	13,200	6,600	6,600
Psychology	276,100	128,900	68,300	22,200	38,300	104,600	19,800	84,800	42,600	5,600	37,000
Sociology and anthropology	44,400	19,400	12,600	1,800	5,000	15,000	8,500	6,500	10,000	2,300	7,700
Other	68,100	30,700	17,800	4,400	8,500	24,700	8,100	16,600	12,700	3,400	9,400
Engineering	450,800	369,000	345,500	14,800	8,700	25,100	21,900	3,100	56,700	35,600	21,100
Aerospace and related engineering ..	17,800	13,700	12,400	S	700	1,100	900	S	3,000	2,500	S
Chemical engineering	22,000	19,800	19,100	S	300	700	600	S	1,600	1,000	600
Civil and architectural engineering ...	73,300	52,300	46,300	4,500	1,400	3,000	2,700	S	18,100	5,800	12,200
Electrical and related engineering	151,300	130,700	125,200	3,400	2,000	8,600	8,100	S	12,100	10,200	1,900
Industrial engineering	23,500	19,100	17,200	S	1,200	1,500	1,100	S	2,900	2,100	800
Mechanical engineering	68,300	59,200	56,700	1,500	900	4,000	3,100	900	5,100	4,000	1,000
Other	94,600	74,300	68,500	3,600	2,200	6,200	5,300	900	14,100	9,900	4,200

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-13.

Employed individuals with S&E highest degree, by highest degree attained, field of highest degree, and employment sector: 1999

Field of highest degree	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/university	Other	Total	Federal	State/local
							Doctorate				
All S&E degree fields	614,600	274,700	211,300	33,600	29,900	283,000	261,200	21,800	56,800	40,100	16,700
Sciences	509,000	207,300	150,000	30,700	26,700	253,000	232,300	20,700	48,700	33,200	15,400
Computer and math sciences	40,600	15,800	14,200	800	800	22,400	21,500	900	2,300	2,000	400
Computer and information sciences	12,100	6,600	6,100	300	200	4,500	4,400	100	1,000	800	200
Mathematical sciences	28,500	9,200	8,100	500	600	17,900	17,100	800	1,300	1,200	200
Life and related sciences	176,200	62,400	46,600	6,500	9,200	96,600	90,500	6,100	17,200	13,100	4,100
Agricultural and food sciences	18,100	7,700	6,300	800	600	8,500	8,000	600	1,900	1,400	400
Biological sciences	153,100	53,300	39,200	5,700	8,400	86,100	80,700	5,400	13,700	10,600	3,100
Environmental life sciences	5,000	1,400	1,100	100	200	2,000	1,900	200	1,600	1,000	600
Physical and related sciences	125,700	65,600	58,500	3,000	4,100	47,500	43,300	4,200	12,700	10,500	2,200
Chemistry, except biochemistry	63,600	40,000	36,800	1,500	1,700	19,500	17,600	2,000	4,100	3,000	1,100
Earth science, geology, and oceanography	16,500	4,600	3,600	500	500	9,000	8,100	900	2,900	2,300	500
Physics and astronomy	43,800	20,300	17,500	900	1,800	18,200	17,000	1,300	5,400	4,900	400
Other	1,800	700	500	S	S	700	700	S	400	300	100
Social and related sciences	166,400	63,500	30,600	20,400	12,500	86,500	77,000	9,400	16,400	7,700	8,800
Economics	22,500	7,200	5,400	1,000	800	12,900	12,600	300	2,500	2,000	500
Political and related sciences	16,700	3,300	1,700	800	800	11,700	10,900	800	1,600	900	800
Psychology	88,800	44,000	19,000	16,700	8,300	35,500	29,400	6,100	9,300	3,200	6,000
Sociology and anthropology	23,100	4,800	2,100	1,000	1,700	16,300	14,900	1,400	2,000	1,000	1,000
Other	15,300	4,200	2,300	1,000	900	10,100	9,200	900	1,000	500	500
Engineering	105,600	67,400	61,300	2,900	3,200	30,100	28,900	1,100	8,100	6,900	1,200
Aerospace and related engineering ..	4,900	2,900	2,500	200	200	1,400	1,300	S	600	600	S
Chemical engineering	13,600	10,500	9,800	400	400	2,500	2,400	S	600	600	S
Civil and architectural engineering ...	9,900	4,800	4,000	300	400	3,700	3,400	300	1,400	800	600
Electrical and related engineering	28,300	19,500	17,900	800	800	7,300	7,100	200	1,500	1,400	S
Industrial engineering	3,300	1,700	1,600	S	S	1,400	1,300	S	200	200	S
Mechanical engineering	13,500	8,800	8,000	300	500	4,100	4,000	S	600	600	S
Other	32,100	19,200	17,500	800	900	9,700	9,300	400	3,100	2,700	500

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-14.

Individuals employed in S&E occupations, by highest degree attained, broad occupation category, and employment sector: 1999

Occupation	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
		All degree levels ^a									
All S&E occupations	3,540,800	2,482,400	2,263,300	105,200	114,000	608,500	496,400	112,100	449,900	241,100	208,800
Scientists	2,170,500	1,373,600	1,197,400	80,200	96,000	541,800	434,200	107,600	255,100	137,300	117,800
Computer and math scientists	1,167,400	943,800	886,800	21,500	35,600	132,200	95,000	37,300	91,300	52,600	38,600
Life and related scientists	341,900	113,400	92,600	8,000	12,800	163,300	148,900	14,400	65,300	36,700	28,500
Physical and related scientists	297,900	161,200	148,800	6,300	6,100	82,400	73,200	9,100	54,300	31,300	23,000
Social and related scientists	363,400	155,200	69,200	44,500	41,600	163,900	117,100	46,800	44,300	16,600	27,700
Engineers	1,370,300	1,108,800	1,065,900	25,000	18,000	66,700	62,100	4,500	194,800	103,800	90,900
Bachelor's											
All S&E occupations	1,994,400	1,555,000	1,465,300	37,200	52,500	171,800	142,500	29,300	267,600	130,200	137,500
Scientists	1,087,100	802,300	738,000	22,000	42,300	150,400	123,500	26,900	134,300	66,100	68,200
Computer and math scientists	740,500	630,000	592,300	13,300	24,400	51,000	36,100	14,900	59,500	31,900	27,600
Life and related scientists	135,500	55,600	47,500	3,800	4,300	47,300	43,000	4,300	32,500	15,900	16,700
Physical and related scientists	139,600	87,200	82,400	2,800	2,000	22,300	21,200	1,100	30,200	14,000	16,200
Social and related scientists	71,400	29,600	15,800	2,200	11,600	29,800	23,100	6,700	12,100	4,300	7,800
Engineers	907,400	752,700	727,200	15,200	10,300	21,400	19,000	2,400	133,300	64,100	69,300
Master's											
All S&E occupations	1,032,100	719,400	639,100	41,200	39,100	178,400	111,800	66,600	134,300	75,500	58,800
Scientists	655,500	415,600	348,300	33,300	34,000	159,200	94,100	65,100	80,800	42,500	38,300
Computer and math scientists	354,100	276,400	260,300	7,000	9,000	50,200	29,900	20,300	27,600	17,800	9,800
Life and related scientists	72,500	25,000	19,100	2,100	3,900	27,800	20,900	6,900	19,700	9,800	9,900
Physical and related scientists	73,000	40,100	36,200	2,300	1,600	19,400	14,200	5,200	13,500	8,200	5,300
Social and related scientists	155,900	74,100	32,700	21,900	19,400	61,800	29,100	32,700	20,000	6,700	13,300
Engineers	376,500	303,800	290,800	7,900	5,100	19,200	17,700	1,500	53,500	33,000	20,500
Doctorate											
All S&E occupations	484,100	195,000	150,000	24,700	20,300	244,300	229,900	14,400	44,800	32,900	11,900
Scientists	399,900	144,000	103,200	23,000	17,700	218,300	204,400	13,800	37,700	26,900	10,800
Computer and math scientists	67,100	32,600	29,400	1,100	2,000	30,700	28,700	2,000	3,800	2,700	1,100
Life and related scientists	121,100	30,400	24,200	1,900	4,300	78,500	75,600	2,900	12,200	10,200	2,000
Physical and related scientists	84,900	33,800	30,200	1,100	2,500	40,600	37,800	2,800	10,400	8,800	1,600
Social and related scientists	126,900	47,100	19,300	18,800	8,900	68,500	62,300	6,100	11,300	5,200	6,100
Engineers	84,200	51,000	46,700	1,700	2,500	26,100	25,500	600	7,100	5,900	1,200

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Science & Engineering Indicators – 2002

Appendix table 3-15.

Individuals employed in S&E occupations, by highest degree attained, broad occupation category, and employment sector: 1997

Occupation	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
		All degree levels ^a									
All S&E occupations	3,369,400	2,343,600	2,126,400	110,100	107,000	586,700	475,700	111,000	439,100	250,600	188,600
Scientists	1,995,100	1,236,900	1,066,000	81,000	89,800	512,700	409,100	103,600	245,500	139,600	105,900
Computer and math scientists	1,039,500	828,900	771,800	25,100	32,000	121,200	88,200	33,000	89,400	53,300	36,100
Life and related scientists	321,800	102,700	81,400	8,000	13,300	154,500	139,100	15,400	64,600	37,900	26,700
Physical and related scientists	284,900	156,100	144,800	6,200	5,100	80,000	71,100	8,900	48,700	30,500	18,200
Social and related scientists	349,000	149,200	68,000	41,700	39,400	157,000	110,600	46,400	42,800	17,900	24,900
Engineers	1,374,400	1,106,700	1,060,400	29,100	17,200	74,000	66,700	7,400	193,600	110,900	82,700
Bachelor's											
All S&E occupations	1,917,600	1,498,100	1,403,300	47,300	47,500	156,300	130,700	25,600	263,300	141,000	122,300
Scientists	1,000,800	740,200	672,200	29,500	38,500	131,700	110,200	21,600	128,900	69,200	59,700
Computer and math scientists	675,400	571,800	531,600	18,600	21,600	41,700	31,100	10,600	61,900	35,500	26,400
Life and related scientists	125,200	49,300	40,400	4,700	4,200	41,200	36,600	4,600	34,700	18,500	16,200
Physical and related scientists	131,700	87,300	81,800	3,600	1,900	21,900	20,600	1,300	22,400	11,100	11,300
Social and related scientists	68,500	31,800	18,400	2,700	10,700	26,800	21,700	5,100	9,900	4,100	5,800
Engineers	916,900	757,900	731,100	17,800	9,100	24,600	20,600	4,000	134,400	71,800	62,600
Master's											
All S&E occupations	967,900	657,200	580,800	39,100	37,300	182,500	113,300	69,200	128,200	74,600	53,600
Scientists	592,000	357,100	296,400	29,400	31,400	158,800	92,700	66,100	76,100	41,500	34,600
Computer and math scientists	301,600	228,400	214,300	5,600	8,500	49,500	29,500	20,000	23,700	15,200	8,500
Life and related scientists	70,300	22,500	18,000	1,500	3,000	31,100	23,500	7,600	16,600	8,400	8,200
Physical and related scientists	69,100	35,600	33,300	1,200	1,100	18,400	13,200	5,200	15,200	9,600	5,600
Social and related scientists	151,100	70,700	30,800	21,100	18,800	59,800	26,500	33,300	20,600	8,300	12,300
Engineers	375,900	300,100	284,400	9,700	5,900	23,700	20,600	3,100	52,100	33,000	19,000
Doctorate											
All S&E occupations	454,700	174,500	134,600	21,200	18,700	235,600	220,900	14,700	44,600	32,800	11,800
Scientists	375,300	127,200	91,200	19,600	16,400	209,900	195,400	14,500	38,100	27,300	10,800
Computer and math scientists	59,000	25,600	22,700	1,000	1,800	29,600	27,400	2,200	3,800	2,600	1,200
Life and related scientists	111,800	27,200	20,800	1,300	5,000	72,500	69,500	3,000	12,200	9,900	2,200
Physical and related scientists	83,700	33,100	29,700	1,300	2,100	39,700	37,300	2,400	10,800	9,500	1,300
Social and related scientists	120,800	41,400	18,000	16,000	7,400	68,000	61,200	6,800	11,400	5,300	6,100
Engineers	79,400	47,200	43,400	1,600	2,200	25,700	25,500	300	6,500	5,500	1,000

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1997.

Appendix table 3-16.

Individuals employed in S&E occupations, by highest degree attained, broad occupation category, and employment sector: 1995

Occupation	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
All degree levels^a											
All S&E occupations	3,369,400	2,343,600	2,126,400	110,100	107,000	586,700	475,700	111,000	439,100	250,600	188,600
Scientists	1,995,100	1,236,900	1,066,000	81,000	89,800	512,700	409,100	103,600	245,500	139,600	105,900
Computer and math scientists	1,039,500	828,900	771,800	25,100	32,000	121,200	88,200	33,000	89,400	53,300	36,100
Life and related scientists	321,800	102,700	81,400	8,000	13,300	154,500	139,100	15,400	64,600	37,900	26,700
Physical and related scientists	284,900	156,100	144,800	6,200	5,100	80,000	71,100	8,900	48,700	30,500	18,200
Social and related scientists	349,000	149,200	68,000	41,700	39,400	157,000	110,600	46,400	42,800	17,900	24,900
Engineers	1,374,400	1,106,700	1,060,400	29,100	17,200	74,000	66,700	7,400	193,600	110,900	82,700
Bachelor's											
All S&E occupations	1,917,600	1,498,100	1,403,300	47,300	47,500	156,300	130,700	25,600	263,300	141,000	122,300
Scientists	1,000,800	740,200	672,200	29,500	38,500	131,700	110,200	21,600	128,900	69,200	59,700
Computer and math scientists	675,400	571,800	531,600	18,600	21,600	41,700	31,100	10,600	61,900	35,500	26,400
Life and related scientists	125,200	49,300	40,400	4,700	4,200	41,200	36,600	4,600	34,700	18,500	16,200
Physical and related scientists	131,700	87,300	81,800	3,600	1,900	21,900	20,600	1,300	22,400	11,100	11,300
Social and related scientists	68,500	31,800	18,400	2,700	10,700	26,800	21,700	5,100	9,900	4,100	5,800
Engineers	916,900	757,900	731,100	17,800	9,100	24,600	20,600	4,000	134,400	71,800	62,600
Master's											
All S&E occupations	967,900	657,200	580,800	39,100	37,300	182,500	113,300	69,200	128,200	74,600	53,600
Scientists	592,000	357,100	296,400	29,400	31,400	158,800	92,700	66,100	76,100	41,500	34,600
Computer and math scientists	301,600	228,400	214,300	5,600	8,500	49,500	29,500	20,000	23,700	15,200	8,500
Life and related scientists	70,300	22,500	18,000	1,500	3,000	31,100	23,500	7,600	16,600	8,400	8,200
Physical and related scientists	69,100	35,600	33,300	1,200	1,100	18,400	13,200	5,200	15,200	9,600	5,600
Social and related scientists	151,100	70,700	30,800	21,100	18,800	59,800	26,500	33,300	20,600	8,300	12,300
Engineers	375,900	300,100	284,400	9,700	5,900	23,700	20,600	3,100	52,100	33,000	19,000
Doctorate											
All S&E occupations	454,700	174,500	134,600	21,200	18,700	235,600	220,900	14,700	44,600	32,800	11,800
Scientists	375,300	127,200	91,200	19,600	16,400	209,900	195,400	14,500	38,100	27,300	10,800
Computer and math scientists	59,000	25,600	22,700	1,000	1,800	29,600	27,400	2,200	3,800	2,600	1,200
Life and related scientists	111,800	27,200	20,800	1,300	5,000	72,500	69,500	3,000	12,200	9,900	2,200
Physical and related scientists	83,700	33,100	29,700	1,300	2,100	39,700	37,300	2,400	10,800	9,500	1,300
Social and related scientists	120,800	41,400	18,000	16,000	7,400	68,000	61,200	6,800	11,400	5,300	6,100
Engineers	79,400	47,200	43,400	1,600	2,200	25,700	25,500	300	6,500	5,500	1,000

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1995.

Science & Engineering Indicators – 2002

Appendix table 3-17.

Individuals employed in S&E occupations, by highest degree attained, broad occupation category, and employment sector: 1993

Occupation	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/university	Other	Total	Federal	State/local
All degree levels^a											
All S&E occupations	3,185,600	2,175,100	1,970,300	113,800	91,000	566,300	453,900	112,500	444,100	252,400	191,700
Scientists	1,846,600	1,112,900	955,000	80,000	77,900	492,100	387,500	104,600	241,600	135,800	105,800
Computer and math scientists	949,500	734,400	683,200	23,600	27,600	123,900	88,200	35,700	91,100	53,300	37,900
Life and related scientists	305,300	94,000	75,600	7,400	11,000	149,000	133,200	15,800	62,300	37,700	24,600
Physical and related scientists	274,300	150,700	138,600	6,500	5,600	79,600	70,300	9,300	44,000	27,600	16,400
Social and related scientists	317,500	133,900	57,600	42,600	33,700	139,500	95,800	43,700	44,200	17,100	27,000
Engineers	1,339,000	1,062,200	1,015,300	33,800	13,200	74,300	66,400	7,900	202,500	116,600	85,9000
Bachelor's											
All S&E occupations	1,849,300	1,416,500	1,325,800	49,300	41,400	152,700	123,100	29,600	280,000	150,800	129,300
Scientists	940,400	678,700	617,800	25,900	35,100	128,200	101,700	26,500	133,500	70,800	62,700
Computer and math scientists	627,300	520,100	484,200	16,400	19,600	45,800	31,900	13,900	61,400	35,000	26,400
Life and related scientists	122,200	46,900	39,000	3,600	4,300	41,300	35,900	5,400	33,900	17,100	16,800
Physical and related scientists	128,800	84,000	78,700	3,100	2,200	20,600	18,400	2,200	24,300	13,000	11,200
Social and related scientists	62,000	27,600	15,900	2,800	9,000	20,500	15,500	5,000	13,900	5,700	8,300
Engineers	908,900	737,800	708,000	23,400	6,300	24,600	21,400	3,100	146,500	80,000	66,500
Master's											
All S&E occupations	893,200	596,700	525,500	39,500	31,700	173,100	106,200	66,900	123,300	71,300	52,100
Scientists	533,900	312,900	255,000	31,400	26,500	148,300	85,500	62,700	72,700	39,200	33,500
Computer and math scientists	267,900	191,800	179,200	6,200	6,400	49,900	30,100	19,900	26,100	15,600	10,600
Life and related scientists	63,800	21,200	17,000	2,100	2,200	26,100	18,900	7,200	16,500	10,600	5,900
Physical and related scientists	67,200	35,800	32,700	2,100	1,000	19,600	14,500	5,100	11,800	7,400	4,400
Social and related scientists	135,000	64,200	26,100	21,000	17,000	52,600	22,000	30,500	18,300	5,600	12,600
Engineers	359,300	283,800	270,500	8,100	5,200	24,800	20,700	4,200	50,600	32,100	18,600
Doctorate											
All S&E occupations	412,100	150,100	111,500	22,700	15,900	225,200	211,700	13,500	36,800	27,600	9,200
Scientists	343,600	111,300	76,400	20,600	14,300	200,300	187,500	12,900	32,000	23,500	8,500
Computer and math scientists	51,200	19,800	17,100	1,000	1,600	28,100	26,100	2,000	3,300	2,500	900
Life and related scientists	102,100	22,800	17,600	1,300	3,900	69,500	67,100	2,400	9,900	8,300	1,600
Physical and related scientists	78,100	30,900	27,100	1,300	2,500	39,400	37,400	1,900	7,800	7,100	700
Social and related scientists	112,200	37,800	14,600	16,900	6,300	63,400	56,900	6,500	10,900	5,600	5,400
Engineers	68,500	38,900	35,100	2,100	1,700	24,900	24,300	600	4,800	4,100	700

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

Science & Engineering Indicators – 2002

Appendix table 3-18.

Individuals with S&E highest degrees, by highest degree attained, broad field of highest degree, and employment sector: 1999

Field of highest degree	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/university	Other	Total	Federal	State/local
		All degree levels ^a									
All S&E degree fields	7,980,100	5,545,400	4,657,400	432,300	455,700	1,379,100	701,700	677,400	1,055,600	450,600	605,000
Sciences	6,043,700	3,945,200	3,167,800	353,400	423,900	1,279,100	621,000	658,200	819,400	319,200	500,200
Computer and math sciences	1,045,800	804,100	732,600	37,000	34,600	164,100	66,600	97,500	77,600	46,600	31,000
Life and related sciences	1,287,700	768,700	603,900	78,400	86,500	345,200	219,700	125,500	173,800	78,800	95,000
Physical and related sciences	621,700	414,500	366,100	30,000	18,400	130,900	90,700	40,200	76,300	43,000	33,300
Social and related sciences	3,088,400	1,957,800	1,465,300	208,100	284,400	638,900	243,900	394,900	491,700	150,700	341,000
Engineering	1,936,400	1,600,300	1,489,600	78,900	31,700	100,000	80,800	19,200	236,200	131,400	104,800
Bachelor's											
All S&E degree fields	5,866,100	4,312,700	3,654,300	323,800	334,500	762,800	305,400	457,300	790,700	314,100	476,500
Sciences	4,486,100	3,148,800	2,571,400	262,600	314,800	718,000	275,500	442,400	619,400	225,300	394,100
Computer and math sciences	742,700	595,500	539,600	29,100	26,800	89,100	23,700	65,400	58,000	32,300	25,700
Life and related sciences	947,000	631,000	501,800	62,600	66,500	190,000	101,700	88,200	126,100	50,200	75,800
Physical and related sciences	380,900	278,700	246,000	20,700	12,000	55,600	32,700	22,900	46,600	21,000	25,600
Social and related sciences	2,415,500	1,643,600	1,284,000	150,100	209,500	383,300	117,400	265,900	388,600	121,700	267,000
Engineering	1,380,000	1,163,900	1,082,800	61,300	19,800	44,800	29,900	14,900	171,300	88,900	82,400
Master's											
All S&E degree fields	1,491,200	954,600	790,600	73,900	90,100	329,600	133,900	195,700	207,000	95,700	111,300
Sciences	1,040,400	585,600	445,100	59,100	81,400	304,500	111,900	192,600	150,200	60,100	90,100
Computer and math sciences	262,600	192,700	178,700	7,100	6,900	52,600	21,400	31,200	17,200	12,300	4,900
Life and related sciences	164,100	75,400	55,400	9,200	10,800	58,600	27,500	31,100	30,200	15,200	15,000
Physical and related sciences	113,900	69,400	60,800	6,300	2,300	27,800	14,600	13,100	16,700	11,200	5,500
Social and related sciences	499,800	248,000	150,200	36,500	61,300	165,600	48,400	117,200	86,200	21,400	64,800
Engineering	450,800	369,000	345,500	14,800	8,700	25,100	21,900	3,100	56,700	35,600	21,100
Doctorate											
All S&E degree fields	614,600	274,700	211,300	33,600	29,900	283,000	261,200	21,800	56,800	40,100	16,700
Sciences	509,000	207,300	150,000	30,700	26,700	253,000	232,300	20,700	48,700	33,200	15,400
Computer and math sciences	40,600	15,800	14,200	800	800	22,400	21,500	900	2,300	2,000	400
Life and related sciences	176,200	62,400	46,600	6,500	9,200	96,600	90,500	6,100	17,200	13,100	4,100
Physical and related sciences	125,900	65,700	58,600	3,000	4,100	47,500	43,300	4,200	12,700	10,600	2,200
Social and related sciences	166,400	63,500	30,600	20,400	12,500	86,500	77,000	9,400	16,400	7,700	8,800
Engineering	105,600	67,400	61,300	2,900	3,200	30,100	28,900	1,100	8,100	6,900	1,200

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Science & Engineering Indicators – 2002

Appendix table 3-19.

Individuals with S&E highest degrees, by highest degree attained, broad field of highest degree, and employment sector: 1997

Field of highest degree	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/university	Other	Total	Federal	State/local
		All degree levels ^a									
All S&E degree fields	7,706,800	5,330,600	4,488,300	436,200	406,100	1,346,900	684,100	662,800	1,029,200	451,500	577,800
Sciences	5,797,300	3,768,700	3,034,400	356,200	378,200	1,243,400	600,900	642,500	785,200	312,100	473,100
Computer and math sciences	1,003,100	755,900	689,700	33,400	32,900	165,300	65,700	99,600	81,900	47,700	34,100
Life and related sciences	1,204,800	720,700	558,300	91,400	71,000	325,800	202,800	123,000	158,400	69,000	89,400
Physical and related sciences	619,700	417,300	366,700	31,800	18,800	128,700	90,100	38,600	73,700	44,400	29,400
Social and related sciences	2,969,700	1,874,800	1,419,700	199,700	255,500	623,700	242,300	381,300	471,200	151,000	320,100
Engineering	1,909,500	1,562,000	1,454,000	80,100	27,900	103,500	83,200	20,300	244,100	139,300	104,700
Bachelor's											
All S&E degree fields	5,686,200	4,178,200	3,555,300	334,000	288,900	737,300	294,800	442,400	770,700	313,000	457,700
Sciences	4,305,500	3,022,300	2,480,700	269,500	272,100	691,800	264,900	426,900	591,400	216,700	374,700
Computer and math sciences	721,600	568,700	516,600	27,100	24,900	90,400	26,300	64,100	62,500	33,700	28,800
Life and related sciences	884,500	593,100	461,000	77,400	54,600	176,900	89,100	87,800	114,500	42,800	71,800
Physical and related sciences	382,400	283,600	249,600	21,700	12,300	54,900	33,200	21,700	43,900	21,800	22,100
Social and related sciences	2,317,100	1,576,900	1,253,400	143,300	180,300	369,600	116,300	253,300	370,500	118,400	252,100
Engineering	1,380,700	1,155,900	1,074,600	64,500	16,800	45,500	29,900	15,600	179,300	96,400	83,000
Master's											
All S&E degree fields	1,432,800	898,500	738,700	72,700	87,000	333,500	133,600	199,900	200,900	97,600	103,200
Sciences	1,002,200	552,900	415,100	59,300	78,500	305,300	109,400	195,900	144,000	61,100	82,900
Computer and math sciences	244,700	174,100	161,600	5,700	6,900	52,800	18,400	34,400	17,700	12,500	5,200
Life and related sciences	156,700	72,900	56,300	8,900	7,700	57,400	27,800	29,600	26,400	13,200	13,200
Physical and related sciences	114,500	70,600	61,400	6,700	2,500	27,500	14,100	13,400	16,400	11,300	5,200
Social and related sciences	486,200	235,300	135,900	38,000	61,400	167,500	49,100	118,500	83,400	24,100	59,300
Engineering	430,600	345,600	323,700	13,400	8,500	28,200	24,200	4,000	56,900	36,500	20,400
Doctorate											
All S&E degree fields	580,300	250,100	192,800	28,000	29,200	273,300	254,500	18,800	56,900	40,300	16,500
Sciences	482,000	189,600	137,200	25,900	26,500	243,500	225,400	18,100	49,000	33,900	15,100
Computer and math sciences	36,900	13,100	11,500	600	1,000	22,100	21,000	1,100	1,600	1,500	100
Life and related sciences	162,500	54,200	40,500	5,100	8,700	91,100	85,500	5,600	17,100	12,700	4,400
Physical and related sciences	122,200	62,700	55,400	3,300	4,000	46,200	42,700	3,500	13,300	11,200	2,100
Social and related sciences	160,500	59,500	29,800	16,900	12,800	84,000	76,100	7,900	16,900	8,500	8,500
Engineering	98,200	60,500	55,700	2,200	2,700	29,800	29,100	700	7,900	6,500	1,400

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1997.

Appendix table 3-20.

Individuals with S&E highest degrees, by highest degree attained, broad field of highest degree, and employment sector: 1995

Field of highest degree	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/university	Other	Total	Federal	State/local
All degree levels^a											
All S&E degree fields	7,347,200	5,045,700	4,226,800	452,500	366,400	1,259,600	644,500	615,100	1,042,000	456,300	585,700
Sciences	5,489,200	3,548,300	2,847,100	361,800	339,300	1,150,200	559,100	591,100	790,800	313,300	477,400
Computer and math sciences	955,500	710,300	644,300	37,900	28,200	158,900	67,700	91,300	86,200	46,400	39,900
Life and related sciences	1,127,900	679,700	528,500	92,100	59,100	294,500	187,900	106,600	153,600	68,200	85,500
Physical and related sciences	606,200	399,800	352,600	30,600	16,600	129,400	91,100	38,300	77,000	46,100	30,900
Social and related sciences	2,799,600	1,758,400	1,321,700	201,200	235,500	567,300	212,400	354,900	473,900	152,700	321,200
Engineering	1,858,000	1,497,400	1,379,700	90,700	27,000	109,400	85,400	24,000	251,200	143,000	108,200
Bachelor's											
All S&E degree fields	5,424,000	3,968,100	3,366,200	343,800	258,000	669,400	266,400	402,900	786,600	321,100	465,600
Sciences	4,061,600	2,845,300	2,333,500	270,500	241,200	620,900	235,400	385,500	595,500	218,300	377,200
Computer and math sciences	688,800	542,500	493,300	28,700	20,600	82,300	25,600	56,800	63,900	30,400	33,500
Life and related sciences	821,000	556,500	434,200	79,000	43,300	154,000	79,600	74,400	110,500	41,900	68,600
Physical and related sciences	375,300	273,600	241,100	22,000	10,500	52,800	30,700	22,100	48,900	25,000	23,900
Social and related sciences	2,176,500	1,472,700	1,164,900	140,900	166,900	331,700	99,500	232,200	372,100	121,000	251,100
Engineering	1,362,400	1,122,800	1,032,700	73,300	16,800	48,500	31,000	17,400	191,100	102,700	88,400
Master's											
All S&E degree fields	1,364,100	841,800	684,300	75,900	81,600	320,400	127,800	192,600	201,900	97,300	104,600
Sciences	957,400	520,200	385,100	61,200	73,900	289,500	102,300	187,100	147,800	62,200	85,500
Computer and math sciences	231,200	156,200	141,000	8,500	6,700	54,500	21,200	33,300	20,500	14,500	6,100
Life and related sciences	149,900	70,600	54,600	7,600	8,300	52,800	25,000	27,800	26,500	13,700	12,800
Physical and related sciences	112,400	66,600	59,500	5,300	1,800	28,600	15,200	13,300	17,300	11,700	5,600
Social and related sciences	463,900	226,800	130,000	39,800	57,000	153,600	40,900	112,700	83,500	22,400	61,000
Engineering	406,600	321,600	299,200	14,700	7,700	30,900	25,400	5,500	54,100	35,000	19,100
Doctorate											
All S&E degree fields	551,300	232,200	175,000	31,200	25,900	266,500	248,800	17,800	52,600	37,600	15,000
Sciences	462,300	179,200	127,300	28,500	23,400	236,500	219,900	16,700	46,600	32,400	14,200
Computer and math sciences	35,400	11,500	10,000	700	900	22,100	21,000	1,200	1,700	1,500	200
Life and related sciences	155,900	52,200	39,200	5,500	7,500	87,400	83,000	4,400	16,300	12,300	4,000
Physical and related sciences	118,100	59,300	51,700	3,300	4,300	48,000	45,000	3,000	10,800	9,400	1,400
Social and related sciences	152,900	56,100	26,400	19,000	10,700	79,100	70,900	8,200	17,800	9,200	8,600
Engineering	89,000	53,000	47,800	2,700	2,500	30,000	28,900	1,100	6,000	5,200	800

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1995.

Science & Engineering Indicators – 2002

Appendix table 3-21.
Employed individuals with S&E highest degrees, by highest degree attained, broad field of highest degree, and employment sector: 1993

Field of highest degree	Employed S&Es, total	Business/industry			Educational			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/university	Other	Total	Federal	State/local
All degree levels^a											
All S&E degree fields	7,035,800	4,833,700	4,032,200	437,700	363,800	1,181,000	641,400	539,700	1,021,100	482,100	539,000
Sciences	5,202,100	3,372,800	2,689,300	346,700	336,900	1,073,100	554,200	518,900	756,200	321,600	434,600
Computer and math sciences	918,000	677,800	615,900	30,100	31,800	150,800	65,500	85,300	89,400	54,700	34,700
Life and related sciences	1,073,100	643,900	492,800	88,100	63,000	280,200	186,600	93,600	149,000	69,500	79,500
Physical and related sciences	599,800	391,100	343,600	32,500	15,100	129,200	93,100	36,100	79,400	49,200	30,200
Social and related sciences	2,611,200	1,660,000	1,237,100	196,000	226,900	512,800	208,900	303,900	438,400	148,200	290,200
Engineering	1,833,700	1,460,900	1,342,900	91,000	27,000	108,000	87,200	20,800	264,800	160,500	104,400
Bachelor's											
All S&E degree fields	5,172,600	3,806,800	3,219,000	336,000	251,800	598,600	263,200	335,300	767,200	338,200	429,100
Sciences	3,814,400	2,698,700	2,200,700	263,100	234,900	550,700	231,400	319,400	564,900	221,900	343,000
Computer and math sciences	663,800	521,200	474,800	23,000	23,400	75,700	24,800	50,800	66,900	38,100	28,800
Life and related sciences	773,600	526,400	404,800	74,100	47,400	138,800	79,200	59,600	108,300	44,200	64,100
Physical and related sciences	372,500	269,900	236,100	25,200	8,600	52,600	31,600	21,100	50,100	28,100	22,000
Social and related sciences	2,004,400	1,381,200	1,084,900	140,800	155,500	283,600	95,700	187,900	339,600	111,500	228,100
Engineering	1,358,300	1,108,100	1,018,300	72,900	16,900	47,800	31,900	16,000	202,300	116,200	86,100
Master's											
All S&E degree fields	1,328,400	798,300	645,600	68,600	84,000	328,100	138,000	190,100	202,000	106,900	95,100
Sciences	937,700	495,900	365,600	53,700	76,600	296,300	110,500	185,800	145,500	67,700	77,800
Computer and math sciences	221,400	145,900	131,700	6,500	7,600	54,300	20,500	33,800	21,200	15,500	5,700
Life and related sciences	151,000	67,100	50,900	8,400	7,800	59,900	28,900	31,000	24,000	12,500	11,500
Physical and related sciences	111,300	62,700	56,300	4,300	2,100	30,000	17,200	12,800	18,600	11,900	6,600
Social and related sciences	453,900	220,100	126,600	34,600	59,000	152,000	43,900	108,200	81,800	27,800	54,000
Engineering	390,700	302,400	280,000	14,900	7,500	31,800	27,500	4,300	56,500	39,200	17,300
Doctorate											
All S&E degree fields	529,200	225,900	166,900	31,800	27,300	252,000	239,500	12,500	51,300	36,700	14,600
Sciences	444,500	175,600	122,300	28,600	24,600	223,700	211,700	12,000	45,300	31,700	13,500
Computer and math sciences	32,800	10,700	9,300	600	700	20,900	20,200	700	1,300	1,100	200
Life and related sciences	148,500	50,300	37,000	5,600	7,800	81,500	78,500	3,000	16,700	12,700	4,000
Physical and related sciences	115,900	58,500	51,200	3,000	4,400	46,600	44,400	2,200	10,800	9,200	1,600
Social and related sciences	147,300	56,000	24,800	19,500	11,700	74,800	68,700	6,100	16,500	8,700	7,800
Engineering	84,700	50,400	44,500	3,200	2,600	28,300	27,800	500	6,000	5,000	1,000

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

Science & Engineering Indicators – 2002

Appendix table 3-22.

Median annual salaries of U.S. individuals in S&E occupations, by occupation and highest degree attained: 1999
(Dollars)

Occupation	Employed S&Es, total	Highest degree			
		Bachelor's	Master's	Doctorate	Professional
S&E occupations	60,000	59,000	64,000	68,000	73,000
Scientists	58,800	55,000	60,000	65,000	79,000
Computer and math scientists	64,000	60,800	68,000	71,200	60,000
Computer and information scientists	65,000	61,000	70,000	81,000	62,000
Mathematical scientists	61,700	56,000	60,000	74,400	S
Postsecondary teachers	48,000	30,000	41,000	60,000	S
Life and related scientists	47,700	37,000	43,800	62,000	123,000
Agriculture and food scientists	45,000	41,500	42,500	64,000	S
Biological scientists	44,000	36,000	44,000	61,300	103,000
Environmental life scientists	46,000	44,700	50,000	61,000	S
Postsecondary teachers	56,100	28,700	42,000	62,000	130,000
Physical and related scientists	52,000	45,000	52,000	70,000	S
Chemistry, except biochemistry	51,000	45,000	52,000	75,000	S
Earth scientists, geologists, and oceanographers	53,000	49,000	55,000	72,000	S
Physicists and astronomers	72,000	50,000	73,700	80,000	S
Other physical and related scientists	42,000	40,000	43,000	68,800	S
Postsecondary teachers	51,000	15,000	38,000	59,600	S
Social and related scientists	47,000	30,000	41,000	60,000	57,000
Economists	67,000	53,000	70,000	92,000	S
Political and related scientists	36,000	35,000	33,000	65,000	S
Psychologists	43,200	26,500	40,000	60,000	57,000
Sociologists and anthropologists	38,000	28,000	39,000	56,000	S
Other social and related scientists	45,000	31,000	42,000	62,000	S
Postsecondary teachers	51,500	S	36,000	55,000	56,000
Engineers	65,000	60,000	70,000	79,000	65,000
Aerospace and related engineers	71,000	69,400	75,000	83,600	S
Chemical engineers	71,900	65,000	80,000	80,000	S
Civil and architectural engineers	58,000	55,300	65,000	68,900	S
Electrical and related engineers	70,000	65,000	75,000	86,000	63,000
Industrial engineers	57,000	55,000	60,200	84,800	S
Mechanical engineers	62,400	60,000	68,000	75,000	S
Other engineers	65,000	60,600	69,400	77,000	S
Postsecondary teachers	64,000	39,000	52,000	72,800	S

S = suppressed for reasons of confidentiality and/or data reliability

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

See text table 3-6 and figure 3-12 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 3-23.

Median annual salaries of U.S. individuals in S&E occupations, by occupation and highest degree attained: 1997
(Dollars)

Occupation	Employed S&Es, total	Highest degree			
		Bachelor's	Master's	Doctorate	Professional
S&E occupations	55,000	52,000	59,000	62,000	80,000
Scientists	52,000	50,000	54,000	60,000	90,000
Computer and math scientists	56,000	54,000	60,000	65,000	67,000
Computer and information scientists	56,000	54,000	62,000	75,000	67,000
Mathematical scientists	60,000	52,500	60,000	70,000	S
Postsecondary teachers	45,000	28,000	35,000	55,000	S
Life and related scientists	44,000	36,000	42,000	58,000	120,000
Agriculture and food scientists	41,000	37,000	40,000	60,000	S
Biological scientists	41,000	35,000	42,000	55,000	120,000
Environmental life scientists	45,000	41,000	52,000	59,000	S
Postsecondary teachers	52,000	28,000	37,500	59,000	110,000
Physical and related scientists	50,000	42,000	51,000	65,000	S
Chemistry, except biochemistry	48,700	41,300	50,000	70,000	S
Earth scientists, geologists, and oceanographers	50,000	46,500	53,000	62,500	S
Physicists and astronomers	63,800	42,000	58,000	74,600	S
Other physical and related scientists	45,000	37,500	50,000	77,800	S
Postsecondary teachers	50,000	14,500	41,000	55,000	S
Social and related scientists	45,000	25,000	41,100	55,000	53,500
Economists	57,700	45,000	62,500	77,000	S
Political and related scientists	32,000	30,000	36,000	75,000	S
Psychologists	40,000	22,000	40,000	56,000	39,000
Sociologists and anthropologists	29,000	20,000	33,500	50,900	S
Other social and related scientists	50,000	25,000	60,600	52,400	S
Postsecondary teachers	49,000	16,000	38,000	52,000	53,000
Engineers	60,000	55,100	64,000	72,000	64,000
Aerospace and related engineers	65,000	61,000	68,000	80,000	S
Chemical engineers	65,000	62,000	70,000	73,000	S
Civil and architectural engineers	53,700	51,000	60,000	68,000	S
Electrical and related engineers	62,000	60,000	69,000	79,300	64,000
Industrial engineers	53,000	52,000	58,000	72,000	S
Mechanical engineers	58,000	55,000	60,000	72,800	S
Other engineers	59,400	55,000	62,000	72,000	S
Postsecondary teachers	60,000	35,000	48,000	65,000	S

S = suppressed for reasons of confidentiality and/or data reliability

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1997.

See text table 3-6 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 3-24.

Median annual salaries of U.S. individuals in S&E occupations, by occupation and highest degree attained: 1995
(Dollars)

Occupation	Employed S&Es, total	Highest degree			
		Bachelor's	Master's	Doctorate	Professional
S&E occupations	50,000	48,000	53,500	58,000	69,000
Scientists	48,000	45,000	49,000	55,000	70,000
Computer and math scientists	50,000	49,000	55,000	58,000	63,000
Computer and information scientists	50,000	49,000	57,000	66,000	63,000
Mathematical scientists	53,000	47,700	55,000	65,000	S
Postsecondary teachers	40,900	24,000	32,800	50,800	S
Life and related scientists	42,000	35,000	40,000	53,000	100,000
Agriculture and food scientists	41,000	37,500	37,300	54,000	S
Biological scientists	40,000	31,600	40,900	52,000	90,000
Environmental life scientists	40,000	37,000	43,000	59,000	S
Postsecondary teachers	49,000	28,000	35,000	54,600	100,000
Physical and related scientists	47,000	40,000	48,100	60,000	S
Chemistry, except biochemistry	46,600	40,000	50,000	64,700	S
Earth scientists, geologists, and oceanographers	45,000	40,000	49,100	62,700	S
Physicists and astronomers	55,500	42,000	52,000	65,000	S
Other physical and related scientists	43,900	37,400	48,000	67,900	S
Postsecondary teachers	45,000	14,000	42,000	50,000	S
Social and related scientists	42,800	27,000	39,300	53,000	48,000
Economists	53,500	42,000	59,900	77,000	S
Political and related scientists	33,000	27,000	36,000	61,000	S
Psychologists	40,000	22,000	37,000	55,000	49,000
Sociologists and anthropologists	32,000	27,000	32,000	50,000	S
Other social and related scientists	40,000	27,000	39,300	53,700	S
Postsecondary teachers	47,000	20,000	37,600	50,000	43,500
Engineers	54,000	50,000	59,500	65,000	50,000
Aerospace and related engineers	58,000	55,000	60,000	70,000	S
Chemical engineers	60,000	55,000	64,000	70,000	S
Civil and architectural engineers	50,000	48,000	55,000	60,000	S
Electrical and related engineers	56,000	52,600	62,000	71,000	53,000
Industrial engineers	50,000	48,000	51,600	65,600	S
Mechanical engineers	52,000	50,000	57,000	62,000	S
Other engineers	53,000	50,000	59,500	65,000	S
Postsecondary teachers	54,000	40,000	44,000	60,000	S

S = suppressed for reasons of confidentiality and/or data reliability

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1995.

See text table 3-6 in Volume 1.

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Appendix table 3-25.

**Median annual salaries of U.S. individuals in S&E occupations, by occupation and highest degree attained: 1993
(Dollars)**

Occupation	Employed S&Es, total	Highest degree			
		Bachelor's	Master's	Doctorate	Professional
S&E occupations	48,000	45,000	50,000	54,800	62,000
Scientists	44,900	41,000	46,500	52,000	65,000
Computer and math scientists	46,800	44,000	50,800	55,800	51,000
Computer and information scientists	47,200	44,400	52,600	65,000	51,000
Mathematical scientists	46,800	43,000	50,000	62,800	S
Postsecondary teachers	39,000	27,400	32,000	48,000	S
Life and related scientists	40,000	32,200	38,000	50,000	80,000
Agriculture and food scientists	38,000	35,000	36,000	52,000	S
Biological scientists	38,000	31,200	40,000	49,000	67,500
Environmental life scientists	35,000	34,000	40,300	52,200	S
Postsecondary teachers	48,000	32,000	34,600	51,000	92,400
Physical and related scientists	45,000	37,500	46,800	58,000	S
Chemistry, except biochemistry	43,800	37,200	47,000	60,500	S
Earth scientists, geologists, and oceanographers	42,000	38,400	46,000	62,000	S
Physicists and astronomers	57,300	44,100	56,000	63,300	S
Other physical and related scientists	44,000	37,500	45,600	60,000	S
Postsecondary teachers	45,000	19,000	42,000	50,000	S
Social and related scientists	40,300	27,400	38,700	49,000	44,200
Economists	50,000	36,000	52,400	72,000	46,000
Political and related scientists	36,000	30,000	40,000	48,000	S
Psychologists	37,500	22,000	37,000	50,000	41,000
Sociologists and anthropologists	35,600	27,000	35,000	53,500	S
Other social and related scientists	37,000	26,800	38,000	47,300	S
Postsecondary teachers	45,000	28,700	37,000	47,000	62,000
Engineers	50,000	48,000	55,200	63,500	50,000
Aerospace and related engineers	54,000	52,000	58,900	67,400	S
Chemical engineers	55,300	52,000	59,600	65,000	S
Civil and architectural engineers	48,000	45,600	52,000	55,000	40,000
Electrical and related engineers	52,000	50,000	59,500	70,000	48,000
Industrial engineers	44,600	44,000	48,000	66,000	S
Mechanical engineers	50,000	48,000	55,900	60,000	61,000
Other engineers	50,000	47,000	54,000	63,000	60,000
Postsecondary teachers	52,000	40,000	44,000	60,000	S

S = suppressed for reasons of confidentiality and/or data reliability

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

See text table 3-6 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 3-26.

Median annual salaries of U.S. individuals in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		Less than 5	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
		All degree levels^a							
S&E occupations	60,000	46,000	57,000	64,000	69,000	70,000	70,600	72,000	70,000
Male	64,000	48,800	60,000	66,000	70,000	70,700	72,100	74,000	70,100
Female	50,000	40,000	50,000	57,000	60,000	58,700	60,000	57,000	52,000
White	61,000	45,000	56,000	65,000	70,000	70,000	71,000	73,000	70,000
Black	53,000	45,000	54,000	55,000	60,000	58,000	53,000	53,000	46,500
Hispanic	55,000	44,000	56,000	58,000	65,000	61,000	68,500	67,000	68,000
Asian/Pacific Islander	62,000	53,000	63,000	68,000	70,000	72,000	70,000	67,200	64,800
Other	52,000	42,000	50,000	57,000	55,000	65,000	75,000	88,000	S
Scientists	58,800	43,000	54,500	62,000	65,300	65,000	67,600	68,100	65,000
Male	62,000	47,800	58,500	65,900	70,000	68,000	70,000	71,000	70,000
Female	50,000	37,000	48,000	55,000	58,100	58,000	60,000	56,000	49,000
White	59,700	41,000	53,000	62,000	65,000	65,000	68,000	70,000	69,000
Black	50,000	44,000	50,000	51,500	58,000	55,600	50,000	50,000	46,500
Hispanic	51,000	41,000	56,000	56,000	65,000	56,000	60,000	54,500	55,000
Asian/Pacific Islander	60,000	54,000	63,000	67,000	73,000	69,000	67,500	60,000	58,200
Other	45,000	38,000	47,500	50,000	36,000	54,000	74,200	70,000	51,400
Computer/math scientists	64,000	55,000	62,000	66,000	69,000	70,000	70,000	69,000	S
Male	65,900	55,000	64,000	70,000	71,000	71,000	72,000	70,000	65,000
Female	58,000	50,000	57,000	58,400	60,000	60,000	63,000	62,000	58,000
White	65,000	53,000	60,000	67,000	68,600	70,000	70,000	69,200	65,000
Black	54,000	49,000	54,000	53,700	60,000	57,000	48,000	34,500	S
Hispanic	59,000	51,000	65,000	58,600	68,000	59,000	60,000	S	S
Asian/Pacific Islander	65,000	60,000	70,000	70,000	75,000	70,000	62,000	69,100	59,000
Other	54,000	54,000	30,000	60,000	S	S	S	S	S
Life and related scientists	47,700	29,000	43,000	52,800	60,000	56,000	63,000	61,000	72,100
Male	51,000	30,000	45,000	53,000	61,000	60,000	67,000	69,000	73,500
Female	39,000	28,100	40,000	49,800	55,000	52,000	50,600	46,000	40,000
White	49,000	28,100	42,000	53,000	60,000	58,000	63,000	61,000	72,100
Black	42,000	30,000	49,000	48,000	44,000	41,500	57,000	30,900	S
Hispanic	35,500	25,000	40,000	48,000	40,000	28,500	34,000	80,000	S
Asian/Pacific Islander	43,000	30,000	44,700	50,400	76,000	54,000	80,000	68,000	58,200
Other	39,000	35,000	43,000	87,000	43,000	43,100	S	S	S
Physical and related scientists	52,000	35,000	46,000	60,000	63,800	62,500	65,000	73,000	60,000
Male	56,000	35,000	47,500	60,000	65,000	68,000	66,000	75,000	74,000
Female	41,400	33,300	43,000	49,000	51,000	55,000	50,000	50,000	49,000
White	52,300	34,000	46,000	60,000	65,000	65,000	65,000	79,800	69,000
Black	43,000	30,000	45,000	43,000	41,700	38,000	43,000	S	S
Hispanic	43,000	30,000	37,000	51,000	50,000	48,000	89,500	79,000	55,000
Asian/Pacific Islander	53,400	40,000	50,000	65,000	65,000	68,000	85,000	54,000	52,000
Other	49,000	32,500	60,000	S	39,000	80,000	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-26.

Median annual salaries of U.S. individuals in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		Less than 5	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
Social and related scientists	47,000	33,000	42,000	50,000	60,000	60,000	63,000	64,000	62,000
Male	54,000	35,000	46,000	56,000	66,000	62,000	64,500	61,000	65,000
Female	40,000	32,000	39,000	45,000	52,000	58,000	62,000	64,000	40,000
White	48,000	32,500	42,000	51,000	60,000	59,000	63,000	64,000	65,000
Black	40,000	30,000	35,000	45,000	48,000	59,000	30,000	S	S
Hispanic	40,000	35,600	46,000	45,000	45,000	45,000	75,000	S	S
Asian/Pacific Islander	48,000	36,000	49,400	65,000	66,000	68,000	60,000	75,000	S
Other	49,000	45,000	50,000	50,000	55,000	53,000	S	S	S
Engineers	65,000	49,000	60,000	65,000	70,900	73,000	75,000	75,000	71,700
Male	65,000	50,000	60,000	66,000	72,000	74,000	76,000	75,000	73,000
Female	55,500	47,000	58,000	64,000	60,000	60,000	65,000	73,000	68,100
White	65,000	48,900	59,800	66,000	72,000	73,000	76,800	75,000	71,700
Black	58,000	48,000	60,000	59,300	65,000	65,000	70,000	S	S
Hispanic	58,000	47,000	56,000	60,000	65,000	75,000	72,000	67,000	80,000
Asian/Pacific Islander	64,400	52,000	63,200	68,000	69,600	75,000	70,200	70,000	69,000
Other	60,000	44,000	52,000	63,000	S	73,000	S	S	S
Bachelor's									
S&E occupations	59,000	43,000	53,000	61,000	67,000	65,600	69,000	70,000	66,000
Male	60,000	45,000	55,000	63,000	68,600	68,400	70,000	70,000	67,200
Female	50,000	38,000	47,800	56,900	58,000	55,600	55,000	56,000	58,000
White	60,000	42,000	53,000	62,000	67,500	67,000	69,500	70,000	67,000
Black	50,600	44,000	50,000	54,000	60,000	56,000	53,000	53,000	63,400
Hispanic	53,500	42,600	53,000	57,000	64,000	59,000	60,000	60,000	68,000
Asian/Pacific Islander	58,000	45,000	55,000	60,000	66,000	69,000	62,000	60,000	60,000
Other	46,000	36,000	47,500	57,000	60,000	73,000	S	S	S
Scientists	55,000	40,000	50,000	60,000	63,800	62,000	64,000	61,800	59,000
Male	60,000	44,000	54,000	64,200	66,000	65,000	65,000	65,000	63,400
Female	48,000	33,300	45,000	55,200	57,000	55,000	51,600	55,000	52,000
White	56,000	40,000	50,000	60,700	65,000	62,700	64,700	64,000	62,000
Black	48,000	42,000	45,000	50,000	58,000	55,000	50,000	50,000	S
Hispanic	50,000	40,000	56,000	57,000	58,000	55,000	50,000	S	S
Asian/Pacific Islander	55,000	45,500	53,000	63,000	61,000	68,600	62,000	54,000	50,000
Other	36,000	33,000	S	40,500	35,000	S	S	S	S
Computer/math scientists	60,800	50,000	59,000	65,000	66,000	68,000	67,600	66,000	63,400
Male	64,000	50,000	60,000	67,000	70,000	70,000	69,000	70,000	65,000
Female	56,000	47,000	54,000	58,000	60,000	58,700	62,000	64,000	58,000
White	62,200	50,000	60,000	65,000	67,000	70,000	68,000	68,000	64,000
Black	50,000	45,000	50,000	53,000	58,000	60,000	48,000	S	S
Hispanic	57,000	47,800	64,800	57,000	66,000	62,000	S	S	S
Asian/Pacific Islander	60,000	53,000	58,200	63,000	70,000	70,000	62,000	60,000	S
Other	35,000	45,000	S	S	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-26.

Median annual salaries of U.S. individuals in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		Less than 5	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Life and related scientists	37,000	25,000	36,000	40,000	47,500	45,000	50,000	50,000	55,000
Male	41,500	25,000	36,000	45,000	46,700	45,000	51,800	54,000	S
Female	33,600	24,000	35,000	36,000	47,500	48,000	34,000	36,000	S
White	38,000	25,000	36,000	41,000	48,000	48,000	50,000	51,000	55,000
Black	36,000	28,000	S	S	S	S	S	S	S
Hispanic	28,500	19,500	S	S	S	S	S	S	S
Asian/Pacific Islander	35,000	26,000	35,000	S	S	42,000	S	S	S
Other	36,000	S	S	S	S	S	S	S	S
Physical and related scientists	45,000	30,000	40,000	52,000	53,400	55,000	60,000	56,500	52,000
Male	47,000	28,000	40,000	52,500	55,000	55,000	62,000	68,000	52,000
Female	38,000	31,000	36,000	47,500	50,000	55,000	40,700	50,000	S
White	45,000	30,000	40,000	52,000	55,000	55,000	60,000	70,000	50,000
Black	43,000	29,000	45,000	36,000	S	S	S	S	S
Hispanic	37,000	29,000	36,000	S	S	44,000	S	S	S
Asian/Pacific Islander	41,400	36,000	40,000	S	40,000	55,000	S	52,800	S
Other	S	S	S	S	S	S	S	S	S
Social and related scientists	30,000	27,500	28,000	48,000	70,000	45,000	36,000	S	S
Male	35,000	26,500	26,000	53,000	70,000	S	35,000	S	S
Female	29,700	28,000	28,000	37,000	S	45,000	S	S	S
White	30,000	26,400	28,000	48,000	80,000	45,000	36,000	S	0
Black	30,000	18,000	S	S	S	S	S	S	S
Hispanic	27,000	26,000	S	S	S	S	S	S	S
Asian/Pacific Islander	30,000	30,000	S	S	S	S	S	S	S
Other	48,000	48,000	S	S	S	S	S	S	S
Engineers	60,000	45,000	55,000	62,000	70,000	70,000	72,000	72,000	69,000
Male	62,000	45,000	55,000	62,000	70,000	70,000	72,000	72,000	70,000
Female	52,000	45,000	54,000	60,500	60,000	60,000	65,000	S	68,100
White	62,000	45,000	55,000	63,000	70,000	70,000	73,000	73,000	70,000
Black	56,000	45,000	57,000	59,300	64,000	63,000	70,000	S	S
Hispanic	56,000	45,000	53,000	58,000	64,000	70,000	68,500	60,000	70,500
Asian/Pacific Islander	59,100	45,000	58,000	60,000	66,000	69,000	60,300	65,000	64,800
Other	60,000	40,000	60,000	63,000	S	73,000	S	S	S
Master's									
S&E occupations	64,000	52,500	63,000	69,100	71,600	72,000	75,000	72,000	77,000
Male	68,000	56,000	65,000	70,000	75,000	74,000	75,000	75,000	80,000
Female	50,000	42,000	54,000	54,800	56,000	58,000	61,000	56,000	41,000
White	64,400	50,000	61,600	69,100	72,000	72,000	75,000	72,000	76,000
Black	54,000	50,000	65,000	51,000	59,000	58,000	30,000	S	S
Hispanic	58,000	50,000	62,000	61,000	72,000	60,000	72,400	67,000	S
Asian/Pacific Islander	65,300	58,000	70,000	75,000	75,000	72,000	70,700	73,000	89,900
Other	54,000	54,000	54,000	73,800	S	S	S	S	S
Scientists	60,000	49,500	60,000	63,000	65,000	62,000	68,000	64,000	59,700

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-26.

Median annual salaries of U.S. individuals in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		Less than 5	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
Male	63,900	55,000	64,000	67,900	72,000	68,000	70,000	69,000	72,100
Female	48,000	39,200	49,000	50,000	55,000	58,000	61,000	56,000	41,000
White	58,000	44,000	56,000	61,000	65,000	63,500	68,000	64,000	59,700
Black	50,000	48,000	62,000	45,000	55,900	54,000	30,000	S	S
Hispanic	51,000	43,000	58,000	55,000	65,000	52,000	S	S	S
Asian/Pacific Islander	65,000	60,000	70,000	70,000	75,000	60,000	60,000	56,000	S
Other	52,500	52,500	55,000	S	S	S	S	S	S
Computer/math scientists	68,000	60,000	68,000	72,000	75,000	71,000	75,000	65,000	74,000
Male	70,000	62,000	70,000	75,000	80,000	75,000	76,000	70,000	72,000
Female	61,000	57,000	62,000	62,700	69,600	63,000	67,000	62,000	S
White	68,000	60,000	65,000	70,600	75,000	74,000	75,400	65,000	74,000
Black	60,000	54,800	72,000	63,000	63,900	54,000	S	S	S
Hispanic	66,000	65,000	75,000	74,000	76,000	52,000	S	S	S
Asian/Pacific Islander	70,000	62,000	75,000	77,000	80,000	61,000	60,000	60,000	S
Other	55,000	S	S	S	S	S	S	S	S
Life and related scientists	43,800	33,000	42,000	41,300	52,000	50,000	54,000	49,300	58,000
Male	46,000	30,000	42,000	40,000	52,000	52,000	54,000	51,000	S
Female	41,000	34,000	41,000	49,700	50,000	49,000	51,000	46,000	S
White	45,000	32,000	40,000	41,300	56,000	49,000	54,000	49,300	S
Black	42,000	34,000	50,000	S	44,000	S	S	S	S
Hispanic	40,000	28,000	40,000	S	S	S	S	S	S
Asian/Pacific Islander	41,000	35,000	42,800	40,000	S	52,000	S	S	S
Other	S	S	S	S	S	S	S	S	S
Physical and related scientists	52,000	36,000	52,000	62,200	63,000	69,000	62,300	73,000	45,000
Male	58,000	35,000	54,000	65,000	70,000	70,000	65,000	73,000	69,000
Female	42,400	36,000	46,000	52,000	41,000	42,400	57,000	S	S
White	55,000	36,000	55,000	62,200	65,000	69,000	62,300	79,800	45,000
Black	44,700	33,000	44,700	S	S	S	S	S	S
Hispanic	36,000	32,000	55,000	S	S	S	S	S	S
Asian/Pacific Islander	50,000	43,000	46,000	63,000	51,000	S	S	55,000	S
Other	50,000	S	S	S	S	S	S	S	S
Social and related scientists	41,000	32,000	40,000	45,000	46,000	50,000	60,000	64,000	80,000
Male	47,500	32,500	39,000	50,000	53,000	50,000	60,000	50,000	80,000
Female	38,000	31,000	40,000	41,000	46,000	51,400	60,000	64,000	S
White	42,000	30,000	39,000	46,000	50,000	50,000	60,000	64,000	80,000
Black	35,000	29,000	37,500	45,000	40,000	58,000	S	S	S
Hispanic	42,000	38,000	46,000	42,000	S	S	S	S	S
Asian/Pacific Islander	48,000	36,000	35,000	S	S	S	S	S	S
Other	40,000	S	S	S	S	S	S	S	S
Engineers	70,000	56,000	66,000	74,000	78,000	79,000	80,000	84,000	95,000
Male	70,000	56,000	67,000	75,000	78,000	79,000	80,000	84,000	95,000
Female	61,000	55,000	65,000	70,000	70,000	76,600	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-26.

Median annual salaries of U.S. individuals in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		Less than 5	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
White	71,000	57,000	67,000	75,000	79,000	79,100	82,000	82,500	100,000
Black	62,000	54,000	65,000	59,000	78,000	105,000	S	S	S
Hispanic	62,000	54,100	65,000	66,000	78,000	75,800	72,400	S	S
Asian/Pacific Islander	68,000	55,000	65,000	75,000	70,000	78,000	75,000	S	S
Other	60,000	57,500	50,000	S	S	S	S	S	S
Doctorate									
S&E occupations	68,000	50,000	61,500	68,000	75,000	78,000	80,000	85,500	85,000
Male	71,000	54,000	65,000	70,000	78,000	80,000	82,000	86,000	87,000
Female	55,000	42,000	55,000	58,800	65,500	69,000	72,000	75,000	70,000
White	68,000	48,000	60,000	67,000	75,000	78,000	80,000	86,000	85,000
Black	60,000	45,000	56,800	67,000	67,000	65,000	69,000	76,000	84,000
Hispanic	58,000	40,000	56,000	60,000	67,000	80,000	77,000	85,000	S
Asian/Pacific Islander	70,000	58,000	67,000	73,000	80,000	85,000	84,000	85,000	104,000
Other	56,000	44,000	49,000	53,000	65,000	80,000	78,000	S	S
Scientists	65,000	44,000	58,000	65,000	72,000	75,000	77,300	83,400	85,000
Male	68,000	46,000	60,000	68,000	75,000	76,000	78,000	84,000	85,000
Female	55,000	40,800	53,000	57,900	64,900	67,500	72,000	75,000	70,000
White	65,000	43,200	57,000	65,000	72,000	75,000	77,000	84,000	84,000
Black	60,000	44,000	52,000	67,000	66,000	61,000	69,000	76,000	84,000
Hispanic	56,000	38,000	55,000	56,000	65,000	77,000	76,000	82,500	S
Asian/Pacific Islander	64,000	50,000	60,000	70,000	78,000	80,000	80,000	80,000	104,000
Other	55,000	43,000	49,000	53,000	65,000	80,000	68,500	S	S
Computer/math scientists	71,200	60,000	70,000	75,000	75,000	76,000	78,600	80,000	80,000
Male	75,000	64,000	74,000	75,000	78,000	78,000	79,000	80,500	80,000
Female	62,000	54,000	65,000	70,000	66,800	70,000	68,000	80,000	S
White	71,500	55,500	70,000	74,400	71,000	76,000	79,000	81,000	80,000
Black	71,000	58,200	71,000	74,000	78,000	65,000	63,000	S	S
Hispanic	60,800	65,000	60,800	57,400	65,500	58,000	72,000	S	S
Asian/Pacific Islander	73,000	68,000	70,000	77,000	80,000	80,000	73,000	80,000	S
Other	60,500	62,000	S	S	S	S	S	S	S
Life and related scientists	62,000	34,000	54,000	65,000	74,000	76,000	80,000	86,000	85,000
Male	65,000	34,000	55,000	67,000	75,000	78,000	80,000	85,000	86,000
Female	53,000	33,000	53,000	60,000	65,000	68,000	80,000	89,100	63,000
White	64,600	35,000	55,000	65,800	73,200	75,000	80,000	86,900	85,000
Black	51,000	35,000	48,000	64,800	62,000	76,000	69,000	S	S
Hispanic	58,000	35,000	60,000	60,400	80,000	85,000	85,000	95,000	S
Asian/Pacific Islander	54,300	31,000	53,800	61,500	78,000	80,000	80,000	85,000	110,000
Other	56,000	35,000	54,300	87,000	65,000	63,000	S	S	S
Physical and related scientists	70,000	50,000	62,000	67,000	80,000	83,000	78,000	87,500	92,000
Male	71,000	50,000	62,000	70,000	80,000	83,000	78,000	88,000	94,000
Female	61,000	50,000	63,800	53,000	80,000	80,000	77,200	60,000	83,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-26.

Median annual salaries of U.S. individuals in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		Less than 5	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
White	70,400	48,000	63,000	67,000	80,000	83,000	79,000	88,000	90,000
Black	58,000	42,000	42,900	67,000	70,500	73,000	75,000	S	S
Hispanic	63,000	38,000	61,500	67,000	67,000	85,000	63,000	79,000	S
Asian/Pacific Islander	67,000	58,000	66,100	72,800	76,000	85,000	79,000	60,000	104,000
Other	61,000	56,000	52,000	S	S	80,000	S	S	S
Social and related scientists	60,000	44,000	53,000	60,000	67,000	69,400	71,100	75,000	80,000
Male	63,500	45,800	55,700	63,000	70,000	70,500	73,000	75,000	80,900
Female	52,000	42,000	50,000	55,000	60,000	64,000	65,000	70,400	75,000
White	60,000	43,500	54,000	59,000	68,000	69,700	71,000	72,500	80,000
Black	60,000	45,000	50,000	67,000	62,300	60,000	80,000	S	S
Hispanic	50,900	38,900	51,000	48,000	55,000	77,000	77,000	S	S
Asian/Pacific Islander	57,000	45,000	50,000	72,000	60,000	77,000	78,000	75,000	S
Other	53,000	44,000	49,000	53,000	55,000	80,000	S	S	S
Engineers	79,000	65,000	75,000	78,700	85,000	90,000	94,000	96,000	91,000
Male	80,000	67,000	75,000	80,000	85,000	90,000	94,000	96,000	91,000
Female	68,000	58,000	72,000	72,000	85,000	90,900	70,000	S	S
White	80,000	66,000	75,000	80,000	85,000	90,000	95,000	94,000	91,000
Black	67,000	62,000	75,000	74,000	78,000	84,500	75,500	S	S
Hispanic	65,000	54,000	68,000	71,000	85,000	100,000	S	S	S
Asian/Pacific Islander	77,000	68,000	75,000	75,000	88,000	92,000	85,000	110,000	100,000
Other	80,000	67,000	S	S	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

See text table 3-8 and figures 3-15, 3-16 in Volume 1.

Appendix table 3-27.

Median annual salaries of U.S. individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
		All degree levels^a							
S&E occupations	55,000	41,000	52,000	59,500	62,000	64,000	67,000	66,200	63,000
Male	58,000	43,000	53,000	60,000	64,000	65,000	69,000	69,000	65,000
Female	47,000	36,000	48,000	52,000	52,000	53,000	55,000	49,900	52,000
White	55,000	40,000	52,000	59,700	62,000	64,000	68,000	66,800	64,000
Black	48,000	39,000	45,000	51,000	55,000	54,000	54,000	55,500	46,500
Hispanic	50,000	40,000	50,000	60,000	55,000	64,000	60,000	78,500	56,000
Asian/Pacific Islander	55,000	46,000	54,000	62,000	63,000	67,000	63,000	60,000	62,000
Other	49,000	31,000	55,000	50,000	54,000	55,000	70,000	S	42,000
Scientists	52,000	38,000	50,000	56,400	59,000	60,000	62,000	61,000	62,000
Male	55,000	41,000	50,500	60,000	60,500	62,000	65,000	65,000	67,000
Female	45,000	34,000	45,000	50,000	50,000	52,400	54,300	49,400	52,000
White	52,500	36,500	50,000	56,000	59,000	60,000	63,200	62,400	65,000
Black	46,000	35,000	42,500	50,000	53,000	52,000	50,000	40,000	46,500
Hispanic	48,000	36,000	48,000	56,000	52,000	55,000	59,000	70,000	36,000
Asian/Pacific Islander	53,000	45,000	52,000	63,000	60,000	65,000	60,000	50,000	60,500
Other	40,000	26,500	53,000	40,000	54,000	49,000	70,000	S	S
Computer/math scientists	56,000	46,000	53,500	60,000	60,000	62,000	65,000	63,000	60,000
Male	58,200	48,000	55,000	61,000	62,000	65,000	65,000	65,000	57,000
Female	51,000	42,000	50,000	54,000	55,000	55,000	62,000	56,000	62,000
White	56,900	45,000	54,000	60,000	60,100	62,100	65,000	63,000	62,000
Black	48,000	40,000	45,000	51,000	55,000	53,000	50,000	40,000	S
Hispanic	53,000	45,000	55,000	55,000	53,000	63,000	59,000	S	S
Asian/Pacific Islander	56,000	50,000	57,000	64,000	62,500	60,000	60,000	49,400	49,900
Other	54,000	50,000	53,000	S	S	S	S	S	S
Life and related scientists	44,000	27,000	39,900	49,000	52,000	54,000	58,000	56,000	66,000
Male	48,700	28,000	40,000	51,000	58,400	56,000	62,000	60,000	69,500
Female	37,000	27,000	39,000	43,800	44,000	50,000	48,000	40,000	52,000
White	45,000	27,000	38,000	49,900	54,000	53,000	57,000	56,000	60,000
Black	46,000	28,000	45,000	47,900	46,000	47,000	64,000	S	S
Hispanic	40,000	22,000	40,000	43,000	46,000	47,000	47,000	S	S
Asian/Pacific Islander	40,000	28,000	42,000	50,000	45,000	65,000	70,000	51,000	69,000
Other	27,000	25,000	40,000	27,000	40,000	58,000	S	S	S
Physical and related scientists	50,000	32,500	44,200	55,000	58,000	60,000	63,200	68,000	71,000
Male	52,000	34,000	45,500	55,000	62,000	63,000	65,000	74,000	73,500
Female	41,000	32,000	41,000	54,000	52,000	50,000	52,200	46,500	46,000
White	50,100	32,000	45,100	55,000	59,000	60,000	64,000	72,000	73,000
Black	42,000	32,000	41,000	38,000	52,000	50,000	52,400	S	S
Hispanic	41,300	35,000	38,000	56,000	42,000	60,000	70,000	51,000	S
Asian/Pacific Islander	50,000	38,000	42,000	58,000	58,000	63,000	60,000	50,000	60,500
Other	58,000	30,000	62,000	S	35,000	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-27.

Median annual salaries of U.S. individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Social and related scientists	45,000	30,000	41,000	51,000	52,000	55,000	60,000	60,000	55,000
Male	50,000	32,000	42,000	55,000	57,500	58,000	60,000	65,000	79,000
Female	38,000	30,000	39,000	47,000	48,000	52,000	55,000	60,000	33,000
White	45,000	30,000	41,000	52,000	52,000	55,000	60,000	60,000	50,000
Black	36,700	25,000	36,000	41,000	43,000	40,000	45,000	S	S
Hispanic	40,000	30,000	45,000	60,000	43,000	45,000	70,000	S	S
Asian/Pacific Islander	44,000	36,000	40,000	55,000	55,000	74,100	26,000	70,000	100,000
Other	30,000	25,000	50,000	30,000	70,000	42,000	S	S	S
Engineers	60,000	45,000	55,000	60,000	65,000	68,000	70,000	70,000	63,000
Male	60,000	45,000	55,000	60,000	65,000	69,000	71,300	70,000	63,000
Female	50,000	42,000	52,000	56,000	60,000	60,000	59,900	59,000	58,200
White	60,000	45,000	55,000	60,000	65,000	68,000	72,000	70,000	63,000
Black	52,000	43,000	52,000	54,000	57,000	67,000	61,000	71,000	S
Hispanic	54,000	41,600	55,000	60,000	60,000	65,000	60,000	78,500	58,000
Asian/Pacific Islander	58,000	47,000	55,000	60,000	65,000	69,000	65,000	67,700	62,000
Other	53,000	40,000	58,000	64,000	70,000	68,600	70,000	S	42,000
Bachelor's									
S&E occupations	52,000	38,000	50,000	55,000	60,000	60,000	64,000	63,600	60,000
Male	55,000	40,000	50,000	57,000	60,100	62,000	65,000	65,000	60,000
Female	45,000	34,000	45,000	51,400	50,000	52,000	50,000	49,400	57,000
White	53,000	38,000	50,000	55,000	60,000	60,000	65,000	65,000	60,000
Black	47,500	37,000	45,000	52,000	55,000	53,000	52,400	55,500	S
Hispanic	49,500	37,000	48,000	56,000	55,000	60,000	60,000	84,000	56,000
Asian/Pacific Islander	50,000	40,000	50,000	55,000	58,000	59,500	59,500	53,000	60,000
Other	45,000	30,000	60,000	40,000	54,000	64,000	70,000	S	S
Scientists	50,000	35,000	47,000	54,000	55,000	57,000	57,100	56,000	55,000
Male	52,000	37,000	49,000	55,000	58,200	58,200	60,000	56,000	55,000
Female	43,500	30,000	42,000	50,000	48,000	52,000	50,000	49,400	57,000
White	50,000	34,000	48,000	54,000	56,000	57,000	59,000	56,000	55,000
Black	45,000	35,000	41,000	48,000	53,000	48,000	50,000	S	S
Hispanic	46,000	32,500	48,000	50,000	52,000	53,000	52,500	S	S
Asian/Pacific Islander	48,000	39,000	50,000	56,300	55,000	53,000	52,000	40,000	48,000
Other	31,600	25,000	65,000	27,000	54,000	S	S	S	S
Computer/math scientists	54,000	41,700	50,500	55,000	58,500	60,000	62,000	60,000	58,000
Male	55,000	42,000	52,000	59,900	60,000	62,000	64,000	60,000	55,000
Female	50,000	39,000	48,600	52,000	51,500	54,000	54,000	56,000	62,000
White	55,000	41,700	52,000	55,400	59,000	60,000	62,000	60,000	62,000
Black	47,000	37,000	42,500	51,000	54,000	53,000	50,000	S	S
Hispanic	50,000	38,000	52,400	55,000	53,000	64,000	59,000	S	S
Asian/Pacific Islander	50,000	45,000	50,000	59,300	58,000	60,000	55,000	39,000	S
Other	54,000	S	S	S	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-27.

Median annual salaries of U.S. individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Life and related scientists	36,000	22,000	32,000	40,000	43,000	46,000	43,000	49,000	52,000
Male	40,000	22,000	31,000	42,000	43,000	44,000	43,000	50,000	55,000
Female	32,000	22,000	32,000	35,200	42,000	48,900	40,000	25,000	S
White	36,000	22,000	31,500	41,000	43,000	45,000	40,300	49,000	52,000
Black	46,000	23,000	S	S	S	S	S	S	S
Hispanic	33,000	20,000	22,900	40,000	S	S	S	S	S
Asian/Pacific Islander	35,000	20,000	40,000	35,000	42,000	41,000	S	S	S
Other	25,000	25,000	S	S	S	S	S	S	S
Physical and related scientists	42,000	28,000	37,000	48,000	52,000	52,000	52,400	57,000	60,000
Male	45,000	28,600	37,000	49,000	52,000	55,000	56,500	64,000	66,500
Female	37,000	26,000	37,000	42,000	48,000	45,000	49,200	46,500	46,000
White	43,000	27,500	37,000	49,000	52,000	53,200	54,000	63,000	66,500
Black	41,000	32,000	41,000	35,000	55,000	S	S	S	S
Hispanic	34,000	31,000	34,000	32,000	S	S	S	S	S
Asian/Pacific Islander	40,000	32,000	37,000	S	55,000	45,000	50,000	40,000	S
Other	40,000	S	S	S	S	S	S	S	S
Social and related scientists	25,000	21,500	25,200	46,500	48,000	60,000	52,000	S	S
Male	25,000	20,000	32,000	53,500	52,000	65,000	S	S	S
Female	25,000	23,000	25,200	45,000	25,000	S	S	S	S
White	25,000	21,000	25,200	46,500	48,000	60,000	52,000	S	S
Black	27,500	20,000	25,000	S	S	S	S	S	S
Hispanic	22,500	22,500	S	S	S	S	S	S	S
Asian/Pacific Islander	25,000	25,000	S	S	S	S	S	S	S
Other	25,000	25,000	S	S	S	S	S	S	S
Engineers	55,100	40,000	50,400	58,000	63,000	65,000	68,200	68,000	61,800
Male	57,000	40,000	51,000	58,500	63,300	65,000	68,500	68,000	61,000
Female	49,500	40,000	50,000	54,000	58,000	60,000	60,100	58,000	70,000
White	56,800	40,000	51,000	58,000	63,800	65,000	70,000	69,000	61,800
Black	50,000	41,000	50,000	53,400	57,000	58,000	54,000	S	S
Hispanic	52,000	40,000	50,000	60,000	60,000	65,000	60,000	84,000	58,000
Asian/Pacific Islander	51,000	40,000	50,000	53,500	60,000	60,000	62,000	60,000	61,000
Other	53,000	38,000	58,000	S	S	55,000	S	S	S
Master's									
S&E occupations	59,000	48,000	58,000	64,500	64,000	67,000	70,000	67,300	63,800
Male	60,000	50,000	60,000	67,000	66,000	70,000	70,000	70,000	72,000
Female	48,000	38,000	51,500	54,000	50,000	52,000	60,000	46,000	40,000
White	60,000	48,000	58,000	65,000	65,000	66,000	70,000	67,000	69,000
Black	48,000	43,000	50,000	47,800	52,000	58,000	45,000	S	S
Hispanic	55,000	46,500	58,000	62,000	55,000	65,000	67,700	70,000	S
Asian/Pacific Islander	59,000	50,000	59,200	66,000	62,700	70,000	67,700	70,000	63,800
Other	50,000	47,000	50,900	60,000	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-27.

Median annual salaries of U.S. individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Scientists	54,000	44,000	52,800	61,000	60,000	59,800	62,000	62,000	52,000
Male	58,000	50,000	56,800	65,000	64,000	62,000	62,000	65,000	71,600
Female	46,000	36,000	49,000	50,000	50,000	52,000	60,000	46,000	35,000
White	54,000	41,000	52,000	60,000	60,000	59,800	62,000	62,000	52,000
Black	43,000	36,000	47,000	42,000	43,000	56,000	S	S	S
Hispanic	50,000	45,000	49,000	62,000	43,000	55,000	S	S	S
Asian/Pacific Islander	57,000	50,000	59,200	66,000	63,500	65,000	62,000	55,000	S
Other	42,000	28,000	50,900	S	S	S	S	S	S
Computer/math scientists	60,000	53,000	60,000	69,000	65,000	66,000	70,000	65,000	45,000
Male	62,500	54,000	60,000	70,000	65,000	70,000	70,000	65,000	45,000
Female	56,000	50,000	58,000	65,000	60,000	58,000	68,500	39,700	S
White	61,000	52,600	60,000	70,000	65,000	67,000	70,000	63,500	45,000
Black	52,000	47,000	58,000	54,000	57,600	57,000	S	S	S
Hispanic	60,000	55,000	67,000	63,000	60,000	55,000	S	S	S
Asian/Pacific Islander	60,000	53,000	64,000	68,800	66,000	68,000	66,000	70,000	S
Other	28,000	S	20,000	S	S	S	S	S	S
Life and related scientists	42,000	31,000	36,400	44,000	49,000	50,000	52,000	48,000	S
Male	45,000	31,000	35,000	48,000	52,000	53,000	52,000	67,300	S
Female	38,000	32,000	40,000	43,800	41,000	35,000	43,100	42,000	S
White	42,000	31,000	35,000	45,000	49,300	50,000	52,000	52,000	S
Black	39,000	31,000	34,000	39,000	48,500	S	S	S	S
Hispanic	33,000	20,000	49,000	S	S	S	S	S	S
Asian/Pacific Islander	39,000	28,000	40,000	32,000	43,000	S	S	S	S
Other	S	S	S	S	S	S	S	S	S
Physical and related scientists	51,000	36,000	48,000	60,000	60,800	60,000	52,200	68,000	63,800
Male	52,000	35,500	50,000	58,000	64,900	60,000	51,000	72,000	75,000
Female	47,000	38,000	42,000	62,700	52,000	55,000	52,200	S	S
White	52,000	36,000	51,900	60,000	62,000	60,000	52,200	74,000	75,000
Black	41,000	39,700	41,000	S	S	S	S	S	S
Hispanic	47,500	28,000	47,500	S	S	S	S	S	S
Asian/Pacific Islander	44,000	38,000	32,000	57,000	48,000	44,000	S	S	S
Other	60,000	S	S	S	S	S	S	S	S
Social and related scientists	41,100	31,000	41,000	47,000	46,000	48,000	54,000	60,000	48,000
Male	46,000	33,500	41,000	55,000	50,000	48,000	54,000	60,000	81,500
Female	37,000	30,000	41,000	45,000	42,000	49,000	54,000	60,000	S
White	42,000	30,000	41,000	47,000	46,000	48,000	55,000	60,000	48,000
Black	35,000	25,000	42,000	34,000	36,000	40,000	S	S	S
Hispanic	45,000	36,000	46,000	S	40,000	40,000	S	S	S
Asian/Pacific Islander	38,000	35,000	33,500	S	S	S	S	S	S
Other	39,000	S	S	S	S	S	S	S	S
Engineers	64,000	51,000	61,000	69,000	70,000	74,000	80,000	75,000	72,000
Male	65,000	51,000	62,000	69,000	70,000	74,000	80,000	75,000	75,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-27.

Median annual salaries of U.S. individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	55,000	50,000	58,000	70,000	62,700	58,800	S	S	S
White	65,000	52,000	62,000	69,000	70,000	74,000	82,000	75,000	80,000
Black	58,000	50,000	60,000	81,000	60,000	S	S	S	S
Hispanic	58,500	48,000	62,000	60,300	78,000	75,000	68,000	S	S
Asian/Pacific Islander	60,000	49,000	59,900	65,600	62,700	71,000	70,000	75,000	62,000
Other	55,000	50,000	S	S	S	S	S	S	S
Doctorate									
S&E occupations	62,000	45,000	56,900	64,000	70,000	72,000	75,000	79,900	80,000
Male	65,000	48,800	60,000	66,200	72,000	74,000	75,000	80,000	80,000
Female	50,000	38,000	50,000	57,000	60,000	63,000	62,000	65,700	68,400
White	62,700	42,000	56,200	63,000	70,000	72,000	75,000	79,000	79,200
Black	55,000	42,000	52,000	56,000	58,000	68,700	72,000	69,000	96,000
Hispanic	56,000	44,000	53,000	60,000	60,000	67,500	72,000	68,700	S
Asian/Pacific Islander	63,000	50,000	60,000	70,000	78,000	75,000	77,500	84,000	100,000
Other	50,000	40,000	50,000	48,000	70,000	58,000	77,000	S	S
Scientists	60,000	40,000	53,000	60,600	67,000	70,000	70,000	78,000	78,000
Male	63,000	42,000	55,000	64,000	70,000	71,000	72,000	78,000	80,000
Female	50,000	37,000	50,000	56,100	59,800	62,000	62,000	65,700	68,400
White	60,000	39,600	54,000	60,000	67,000	70,000	70,000	78,000	78,000
Black	53,000	42,000	48,500	55,000	58,000	68,700	71,000	69,000	96,000
Hispanic	54,000	43,500	50,000	60,000	56,000	68,000	76,000	68,700	S
Asian/Pacific Islander	56,200	44,000	50,000	67,900	72,000	73,000	72,500	78,000	100,000
Other	50,000	38,000	42,000	48,000	70,000	50,000	77,000	S	S
Computer/math scientists	65,000	55,000	63,000	68,000	70,000	69,500	70,000	74,000	75,000
Male	67,500	57,200	64,000	70,000	72,000	70,000	69,000	74,000	75,000
Female	57,000	44,500	60,000	60,500	63,000	56,000	70,000	80,000	S
White	65,000	51,500	63,000	66,000	69,300	69,500	69,000	75,000	75,000
Black	63,000	80,000	63,000	65,000	58,000	84,000	S	S	S
Hispanic	55,000	50,000	66,000	55,000	53,000	64,000	S	S	S
Asian/Pacific Islander	65,000	60,000	65,000	70,000	80,000	70,000	74,000	49,400	S
Other	57,000	34,500	S	S	S	S	S	S	S
Life and related scientists	58,000	31,900	52,000	61,300	67,000	70,000	72,000	76,000	78,000
Male	60,000	32,000	52,000	63,200	70,000	71,000	75,000	76,000	78,000
Female	48,500	30,000	50,000	56,000	60,000	60,000	60,000	75,000	70,000
White	60,000	32,000	52,500	62,000	67,000	70,000	72,000	75,000	75,000
Black	55,000	32,000	48,000	72,000	67,000	65,500	64,000	S	S
Hispanic	56,000	39,100	50,000	62,000	72,000	62,500	90,000	S	S
Asian/Pacific Islander	48,000	30,000	42,000	60,000	73,000	70,000	75,000	79,500	100,000
Other	55,000	29,200	54,000	72,000	S	58,000	S	S	S
Physical and related scientists	65,000	45,000	56,000	65,400	75,000	76,000	75,000	82,000	86,000
Male	67,000	45,900	58,000	67,000	77,000	77,000	75,000	82,000	90,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-27.

Median annual salaries of U.S. individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1–4	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
Female	54,800	41,000	50,000	60,500	59,000	68,000	63,000	60,000	72,000
White	67,000	44,500	58,000	66,000	75,000	76,000	75,000	82,000	83,000
Black	60,000	48,000	47,000	52,000	76,000	80,000	S	S	S
Hispanic	60,000	43,600	48,000	77,100	65,000	75,000	70,000	83,900	S
Asian/Pacific Islander	60,000	48,500	55,000	65,000	75,000	78,000	70,000	85,000	S
Other	55,000	42,000	S	S	62,500	S	S	S	S
Social and related scientists	55,000	40,000	50,000	58,000	60,000	65,000	65,000	70,000	72,000
Male	58,000	42,000	52,000	58,000	63,700	66,000	66,000	71,300	75,000
Female	48,500	39,000	47,000	55,000	58,000	64,000	60,000	65,700	60,000
White	55,000	39,500	50,000	58,000	62,500	65,000	65,000	71,300	72,300
Black	50,000	42,000	50,000	50,000	58,000	68,500	72,000	65,500	S
Hispanic	50,000	39,000	47,300	60,000	56,000	67,000	80,000	63,000	80,000
Asian/Pacific Islander	50,000	45,000	48,000	57,800	50,000	95,000	73,000	70,000	65,000
Other	48,000	40,000	38,000	50,000	70,000	49,000	67,000	S	S
Engineers	72,000	60,000	70,000	75,000	80,500	85,000	85,000	85,000	85,000
Male	73,000	60,000	70,000	75,000	81,000	86,000	85,000	85,000	85,000
Female	60,000	52,000	64,100	75,000	80,000	75,800	78,000	S	S
White	75,000	60,000	69,500	75,000	82,000	86,000	86,000	85,000	84,300
Black	67,000	50,000	67,000	75,000	79,000	69,000	73,500	S	S
Hispanic	66,200	50,000	72,000	60,000	70,000	65,000	69,000	S	S
Asian/Pacific Islander	70,000	60,000	70,000	75,000	81,000	83,000	86,000	100,000	S
Other	74,000	62,500	58,000	S	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1997.

Appendix table 3-28.

Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
		All degree levels^a							
S&E occupations	50,000	38,000	48,000	54,000	57,000	60,000	62,000	60,000	59,000
Male	52,000	39,900	49,000	55,000	60,000	61,500	65,000	61,000	60,000
Female	42,000	34,000	44,000	48,000	46,700	51,300	52,100	45,000	49,600
White	50,500	37,500	48,000	54,000	57,000	60,000	63,500	60,000	60,000
Black	45,000	37,000	44,000	49,400	48,900	48,000	49,900	60,000	41,300
Hispanic	47,000	37,500	45,000	52,000	53,000	55,000	65,000	70,000	59,000
Asian/Pacific Islander	50,000	40,000	50,000	56,200	60,000	60,000	56,400	58,000	53,300
Other	49,700	35,000	48,000	53,000	52,000	66,000	60,000	61,000	S
Scientists	48,000	34,500	45,000	51,000	52,600	57,000	60,000	56,000	57,000
Male	50,000	36,000	47,500	53,500	56,000	60,000	61,000	60,700	60,000
Female	41,000	31,000	42,000	47,000	45,000	50,000	53,300	44,000	46,100
White	48,500	34,000	45,000	51,000	53,300	58,000	60,000	56,000	59,000
Black	41,000	33,000	41,000	48,000	44,500	46,000	50,000	52,800	41,300
Hispanic	42,000	33,000	44,000	50,000	50,000	49,500	63,000	70,000	59,000
Asian/Pacific Islander	48,000	39,000	48,800	56,000	58,400	53,000	52,000	51,000	50,000
Other	42,300	30,000	42,000	50,000	40,000	60,000	60,000	50,000	S
Computer/math scientists	50,000	40,000	48,000	52,800	55,900	59,900	60,000	55,000	50,000
Male	52,000	40,000	50,000	55,000	59,000	60,100	62,000	56,000	53,500
Female	45,000	38,000	45,000	48,000	49,000	52,000	55,000	48,000	49,600
White	50,200	40,000	48,000	52,000	56,000	60,000	60,000	55,000	50,200
Black	44,000	37,000	43,000	50,000	46,000	52,000	62,000	S	42,000
Hispanic	46,000	38,400	44,700	54,000	50,000	49,900	S	S	S
Asian/Pacific Islander	50,000	44,000	50,000	59,000	60,000	52,000	45,000	51,000	45,000
Other	52,000	35,000	41,000	53,000	S	70,000	S	S	S
Life and related scientists	42,000	26,800	37,000	45,500	47,200	52,000	56,000	55,000	67,000
Male	45,000	27,000	40,000	49,000	48,500	54,000	57,600	61,000	70,000
Female	34,000	26,000	32,000	42,000	42,000	45,000	48,000	40,900	33,000
White	42,500	26,000	38,000	46,200	47,200	52,400	55,000	55,000	70,000
Black	35,000	24,000	30,900	49,000	41,000	48,000	50,000	S	33,000
Hispanic	37,000	27,000	33,000	41,000	46,900	43,300	30,000	S	110,000
Asian/Pacific Islander	37,000	28,500	32,000	42,000	51,300	65,000	67,000	52,000	70,000
Other	50,000	32,300	51,000	50,000	40,000	91,000	S	S	S
Physical and related scientists	47,000	32,000	43,000	51,600	52,300	58,000	63,000	62,000	60,000
Male	50,000	32,000	43,000	53,500	58,000	59,000	66,700	66,000	60,000
Female	39,600	30,000	44,000	45,500	43,000	49,000	45,000	25,800	55,100
White	48,000	32,000	42,000	53,000	54,800	59,000	67,000	63,000	60,000
Black	42,000	30,000	43,000	44,500	45,200	45,000	47,000	S	S
Hispanic	40,000	28,100	49,000	50,000	57,800	50,200	75,000	S	S
Asian/Pacific Islander	45,000	33,400	50,000	50,000	54,000	47,800	50,200	50,000	48,000
Other	32,000	28,500	S	79,000	32,000	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-28.

**Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)**

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Social and related scientists	42,800	28,000	40,000	47,300	48,600	53,000	57,000	56,000	60,000
Male	48,000	32,000	41,300	50,000	51,000	56,000	60,000	60,700	69,000
Female	37,000	25,200	40,000	45,000	42,000	45,500	50,000	50,000	33,000
White	43,200	28,000	40,000	48,000	49,000	53,600	57,000	56,000	60,000
Black	35,000	30,000	43,000	37,800	37,000	25,000	40,000	S	S
Hispanic	40,000	32,400	40,000	45,000	48,000	67,000	53,000	S	S
Asian/Pacific Islander	45,000	33,500	48,000	50,000	53,700	71,300	60,000	61,000	S
Other	37,000	25,200	48,000	30,000	37,000	46,000	S	S	S
Engineers	54,000	41,000	50,000	56,000	60,000	64,000	65,500	62,000	60,000
Male	55,000	41,000	50,000	56,100	60,000	65,000	66,000	62,000	60,000
Female	47,000	40,000	48,000	51,500	52,600	52,000	50,000	63,000	75,000
White	54,000	41,000	50,000	56,000	60,000	65,000	67,000	62,500	60,000
Black	48,600	42,000	47,700	52,000	65,000	50,000	48,000	61,000	S
Hispanic	50,000	41,000	49,700	53,000	60,000	60,000	66,000	70,000	51,000
Asian/Pacific Islander	52,000	40,300	50,000	57,000	60,000	61,000	60,000	60,000	54,600
Other	58,000	40,000	48,800	62,000	62,000	66,000	S	S	S
Bachelor's									
S&E occupations	48,000	35,000	45,000	50,800	54,000	57,000	60,000	58,500	57,000
Male	50,000	35,700	46,000	52,000	56,000	59,000	61,000	60,000	58,000
Female	40,200	30,000	43,000	46,000	45,000	50,000	52,000	45,000	50,000
White	49,100	34,000	45,600	51,000	55,000	58,000	60,000	58,500	58,000
Black	43,000	36,000	42,000	48,800	48,000	48,000	49,900	61,000	42,000
Hispanic	45,000	35,000	45,000	50,000	50,000	53,400	65,000	72,000	51,000
Asian/Pacific Islander	45,800	35,500	45,000	50,000	52,000	52,000	52,000	57,000	51,000
Other	50,000	34,300	48,000	53,000	62,000	S	60,000	S	S
Scientists	45,000	30,000	44,000	48,000	50,000	54,000	58,000	53,000	52,300
Male	48,000	32,000	45,000	50,000	52,000	55,000	60,000	55,000	57,000
Female	39,700	27,000	41,000	45,000	43,000	50,000	53,400	44,000	49,600
White	45,000	30,000	44,000	48,000	50,000	55,000	60,000	53,700	55,000
Black	40,000	30,000	36,000	46,000	41,000	46,000	52,000	S	45,500
Hispanic	39,000	30,500	40,000	48,000	50,000	43,500	S	S	S
Asian/Pacific Islander	43,000	34,000	45,000	50,000	50,000	44,000	42,900	50,000	46,100
Other	40,000	30,000	S	53,000	S	S	S	S	S
Computer/math scientists	49,000	36,000	46,000	50,000	55,000	55,500	60,000	55,000	50,200
Male	50,000	36,500	47,000	52,000	57,700	58,000	61,000	57,000	54,000
Female	44,000	35,000	43,400	46,000	48,000	50,000	55,000	50,000	49,600
White	49,700	36,000	46,000	50,000	55,000	56,700	60,000	55,000	52,300
Black	42,000	36,000	39,000	49,000	45,800	52,000	62,000	S	45,500
Hispanic	44,000	36,500	44,000	50,600	50,000	49,500	S	S	S
Asian/Pacific Islander	46,300	38,000	48,000	53,000	50,000	50,000	42,900	51,000	S
Other	53,000	40,000	S	S	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-28.

Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Life and related scientists	35,000	20,000	30,000	38,000	40,000	43,500	48,000	47,000	50,000
Male	37,000	21,000	31,000	39,000	40,000	45,000	48,000	48,400	50,000
Female	30,000	20,000	29,900	38,000	40,000	30,000	35,000	S	S
White	35,300	19,900	30,000	38,500	40,000	43,900	48,000	47,000	50,000
Black	27,800	19,500	24,000	S	S	S	S	S	S
Hispanic	33,000	21,800	32,000	37,500	S	S	S	S	S
Asian/Pacific Islander	30,000	23,000	24,000	S	40,000	S	S	S	S
Other	36,900	36,000	S	S	S	S	S	S	S
Physical and related scientists	40,000	28,000	38,000	45,500	44,000	53,000	50,700	53,700	57,500
Male	42,000	28,000	38,000	47,000	46,500	53,000	55,900	54,400	60,000
Female	35,000	28,000	38,500	43,000	40,000	49,000	45,000	25,800	52,000
White	40,000	28,000	37,500	47,000	44,000	55,000	58,000	53,700	60,000
Black	40,000	30,000	40,000	44,500	45,000	S	S	S	S
Hispanic	31,000	28,100	S	33,000	S	S	S	S	S
Asian/Pacific Islander	37,000	27,000	43,000	38,000	40,000	30,000	43,000	S	48,000
Other	30,000	28,500	S	S	S	S	S	S	S
Social and related scientists	27,000	20,000	30,000	37,800	40,000	37,000	27,000	S	60,000
Male	30,000	25,000	34,500	34,000	45,000	25,000	S	S	70,000
Female	22,000	20,000	22,000	50,000	19,000	S	S	S	S
White	27,000	20,000	30,000	40,000	45,000	45,000	27,000	S	60,000
Black	22,500	22,000	S	37,800	12,000	S	S	S	S
Hispanic	25,000	22,500	S	S	S	S	S	S	S
Asian/Pacific Islander	24,000	20,000	S	S	S	S	S	S	S
Other	25,200	25,200	S	S	S	S	S	S	S
Engineers	50,000	38,000	47,500	53,500	58,000	60,000	63,600	61,000	60,000
Male	51,100	38,000	48,000	54,000	58,800	61,000	64,000	61,000	59,000
Female	44,800	38,000	46,000	50,000	51,200	52,000	49,000	63,000	S
White	51,000	37,800	48,000	54,000	58,400	62,000	65,000	62,000	59,000
Black	48,000	40,000	47,600	50,000	60,000	50,000	48,000	61,000	S
Hispanic	48,000	38,000	47,900	52,000	52,000	60,000	67,000	72,000	51,000
Asian/Pacific Islander	48,000	36,400	45,000	51,000	55,000	53,000	57,000	57,000	53,300
Other	58,000	38,000	48,000	58,000	62,000	S	S	S	S
Master's									
S&E occupations	53,500	44,000	52,000	60,000	59,000	63,100	64,000	55,000	56,000
Male	56,000	45,700	55,000	60,000	61,000	65,000	65,000	60,000	60,000
Female	43,600	37,500	44,000	50,500	45,000	53,000	50,000	43,400	33,000
White	54,500	44,000	53,000	60,000	59,000	63,100	65,000	55,000	56,000
Black	47,600	43,000	48,000	53,000	50,000	55,000	40,000	S	S
Hispanic	50,000	44,000	49,000	56,000	55,000	63,200	65,000	45,000	S
Asian/Pacific Islander	52,000	43,600	53,000	60,000	61,000	62,000	55,000	64,500	50,000
Other	48,000	39,000	48,000	S	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-28.

**Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)**

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Scientists	49,000	39,500	48,000	55,000	50,000	58,300	58,000	53,000	45,000
Male	52,000	41,000	50,200	60,000	55,900	62,100	60,000	55,000	50,000
Female	41,500	35,000	41,000	50,000	43,000	52,000	50,000	43,400	33,000
White	49,000	38,000	47,000	55,000	50,000	60,000	58,000	53,800	45,000
Black	41,000	36,000	46,000	47,500	46,000	46,000	S	S	S
Hispanic	47,000	37,600	45,700	55,000	48,000	54,000	S	S	S
Asian/Pacific Islander	50,000	43,000	50,000	60,600	60,000	50,000	55,000	S	S
Other	41,000	32,000	42,300	S	S	S	S	S	S
Computer/math scientists	55,000	45,700	55,000	62,000	56,800	65,000	63,000	52,000	43,300
Male	57,500	47,000	58,000	64,000	59,900	68,000	64,000	54,000	43,300
Female	50,000	42,000	48,000	58,000	52,000	60,000	52,400	S	S
White	55,600	45,700	56,000	62,000	56,700	65,000	64,000	54,000	43,300
Black	49,200	43,000	51,000	60,600	46,000	74,000	S	S	S
Hispanic	53,000	47,000	54,000	57,000	53,000	S	S	S	S
Asian/Pacific Islander	55,000	45,500	55,000	62,600	62,400	58,000	60,000	S	S
Other	41,000	25,000	S	S	S	S	S	S	S
Life and related scientists	40,000	31,000	35,000	45,000	44,000	48,000	45,000	50,000	S
Male	44,000	30,000	37,000	45,000	47,000	50,000	46,000	65,000	S
Female	35,000	32,300	32,000	42,300	36,000	45,000	29,500	43,400	S
White	41,000	31,000	37,000	45,000	S	S	S	S	S
Black	32,000	29,000	32,000	39,000	S	S	S	S	S
Hispanic	30,000	24,000	42,000	S	28,200	S	S	S	S
Asian/Pacific Islander	35,000	32,000	23,000	40,000	S	S	S	S	S
Other	50,000	S	S	S	S	S	S	S	S
Physical and related scientists	48,100	36,000	45,900	57,800	59,700	52,000	67,000	53,800	45,000
Male	50,000	36,000	45,000	57,800	62,000	55,000	67,000	65,000	45,000
Female	42,000	37,000	52,500	51,000	44,400	48,000	42,000	S	S
White	50,000	37,000	45,000	59,000	60,000	55,000	67,000	57,300	45,000
Black	40,500	35,000	46,000	S	S	S	S	S	S
Hispanic	45,000	16,000	45,000	52,000	S	S	S	S	S
Asian/Pacific Islander	43,000	35,000	50,000	47,000	44,000	47,800	53,000	S	S
Other	43,000	S	S	S	S	S	S	S	S
Social and related scientists	39,300	27,000	37,000	40,000	45,000	47,000	45,000	55,000	50,000
Male	40,000	28,600	37,000	40,000	48,600	48,000	45,000	62,000	62,000
Female	36,000	26,700	36,000	40,000	40,000	42,500	50,000	50,000	S
White	39,300	27,000	36,000	42,000	45,000	47,000	45,000	55,000	46,700
Black	36,100	23,000	40,000	30,000	49,000	S	S	S	S
Hispanic	38,000	35,000	44,000	60,000	S	S	S	S	S
Asian/Pacific Islander	40,000	27,000	40,000	S	53,700	S	S	S	S
Other	36,000	32,000	S	S	S	S	S	S	S
Engineers	59,500	48,400	58,000	62,200	67,700	68,000	70,000	61,000	62,000
Male	60,000	49,000	58,000	62,500	68,000	68,000	70,000	61,000	62,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-28.

Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	52,000	46,500	53,300	60,000	62,000	60,000	50,000	S	S
White	60,000	50,000	58,400	62,500	68,000	68,000	72,000	61,000	62,000
Black	54,000	48,000	48,000	65,000	90,000	S	S	S	S
Hispanic	53,500	47,000	52,800	68,000	69,900	66,000	65,000	S	S
Asian/Pacific Islander	55,000	44,200	55,900	60,000	62,000	65,000	60,000	65,000	54,600
Other	56,700	55,000	54,000	S	S	S	S	S	S
Doctorate									
S&E occupations	58,000	41,000	54,000	60,000	65,000	67,000	70,000	75,000	71,000
Male	60,000	45,000	55,000	60,000	67,000	68,000	70,000	75,000	71,000
Female	47,600	36,000	49,500	54,800	56,000	55,000	59,000	52,500	70,000
White	59,000	41,000	54,000	60,000	65,000	66,000	70,000	75,000	71,000
Black	50,000	40,000	48,000	50,000	65,000	57,000	63,000	79,300	24,000
Hispanic	50,500	40,000	50,000	61,000	57,300	60,000	70,000	75,000	139,000
Asian/Pacific Islander	56,000	43,000	56,000	64,000	68,000	70,000	70,000	76,000	70,000
Other	52,000	35,000	48,000	61,000	52,000	60,000	60,000	S	S
Scientists	55,000	38,000	51,000	58,000	62,400	64,000	68,500	74,500	70,000
Male	59,000	40,000	52,300	60,000	65,000	65,000	69,500	75,000	70,000
Female	46,700	35,600	48,600	54,000	55,000	55,000	59,000	52,500	70,000
White	56,000	38,000	51,300	58,000	62,400	64,000	68,500	74,300	70,000
Black	49,000	38,200	48,000	49,000	65,000	55,000	60,000	79,300	24,000
Hispanic	50,000	40,000	47,000	61,000	50,000	60,000	70,000	79,200	139,000
Asian/Pacific Islander	51,000	38,000	52,000	60,000	63,300	68,000	67,000	70,000	67,000
Other	50,000	35,000	43,000	61,300	50,000	60,000	60,000	S	S
Computer/math scientists	58,000	49,000	58,000	60,000	61,000	62,600	68,000	72,000	54,100
Male	60,000	52,000	60,000	60,000	65,000	63,000	67,800	73,000	54,100
Female	50,000	38,000	54,500	61,000	52,000	55,000	70,700	38,900	94,000
White	60,000	48,000	60,000	59,200	62,000	63,000	67,000	72,000	55,000
Black	48,200	49,200	48,000	61,000	48,000	55,000	55,000	S	S
Hispanic	48,000	40,000	49,200	85,000	50,000	49,900	S	S	S
Asian/Pacific Islander	56,000	54,000	57,000	61,800	60,000	55,000	73,500	70,000	S
Other	70,000	S	S	S	S	70,000	S	S	S
Life and related scientists	53,000	30,000	50,000	57,900	65,000	65,000	70,000	70,000	76,000
Male	56,000	31,500	50,000	58,000	65,500	67,500	71,000	70,000	78,000
Female	43,000	29,500	45,500	56,500	54,600	60,000	56,800	63,000	30,000
White	55,000	32,000	50,000	58,000	64,000	65,000	70,000	70,000	74,500
Black	47,000	25,000	45,000	49,000	70,000	46,500	50,000	S	S
Hispanic	45,000	30,000	42,000	61,000	59,000	59,000	80,000	S	S
Asian/Pacific Islander	45,000	28,800	50,000	57,900	67,000	66,000	67,000	77,200	70,000
Other	61,300	26,000	51,000	80,000	50,000	65,000	S	S	S
Physical and related scientists	60,000	40,000	56,000	62,500	70,000	70,000	72,000	78,000	73,200
Male	61,500	40,000	56,000	64,000	70,000	70,000	72,800	79,000	73,200

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-28.

Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	51,000	42,000	57,000	57,000	65,400	53,600	57,300	50,000	S
White	61,600	42,000	57,000	62,600	70,000	70,000	72,800	77,900	74,000
Black	47,000	40,000	59,000	48,000	65,000	68,000	S	S	S
Hispanic	56,000	40,000	58,000	52,000	68,800	60,000	72,400	S	S
Asian/Pacific Islander	52,000	39,000	51,000	64,100	63,200	67,600	60,000	79,000	S
Other	46,500	40,000	S	79,000	S	S	S	S	S
Social and related scientists	53,000	40,000	50,000	55,000	57,600	60,000	63,200	71,800	67,700
Male	56,000	41,300	50,900	55,000	58,700	61,000	65,000	75,000	66,000
Female	46,300	37,500	48,000	50,000	55,000	53,600	55,000	52,000	75,000
White	53,600	39,000	50,000	55,000	57,600	60,000	63,200	73,000	69,000
Black	53,000	39,000	51,000	53,000	65,000	72,000	66,000	S	S
Hispanic	47,000	41,000	45,000	49,000	55,000	70,000	70,000	S	S
Asian/Pacific Islander	50,000	45,000	49,500	50,900	53,000	100,000	72,000	61,000	S
Other	48,000	36,000	42,000	42,000	S	48,000	S	S	S
Engineers	65,000	55,000	61,700	68,000	75,000	80,000	76,000	80,000	80,000
Male	66,000	55,000	62,000	68,000	75,000	80,000	76,000	80,000	80,000
Female	59,400	58,200	54,000	65,000	66,000	77,000	S	S	S
White	67,000	57,000	62,000	69,000	75,000	80,000	76,000	80,000	82,000
Black	62,000	58,500	52,600	70,000	80,000	73,000	S	S	S
Hispanic	56,000	50,000	56,000	55,000	72,000	60,000	S	S	S
Asian/Pacific Islander	63,000	54,000	62,000	69,300	74,900	75,000	80,000	81,000	80,000
Other	60,000	45,000	S	S	S	60,000	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1995.

Appendix table 3-29.

Median annual salaries of U.S. individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	
		All degree levels ^a							
S&E occupations	48,000	37,000	45,000	51,000	52,000	55,500	60,000	59,000	60,000
Male	50,000	38,000	46,000	52,000	53,500	57,600	60,000	60,000	61,000
Female	40,000	34,000	40,200	44,000	43,000	46,000	47,700	43,500	49,400
White	48,000	37,000	45,000	51,000	52,000	56,000	60,000	60,000	61,000
Black	40,000	34,000	41,000	45,000	44,400	44,000	56,200	52,400	40,000
Hispanic	43,000	35,400	44,200	48,000	50,000	51,500	62,200	52,000	52,000
Asian/Pacific Islander	48,000	38,300	48,000	54,000	55,600	54,000	54,000	54,100	54,800
Other	43,300	36,000	41,600	46,300	45,600	52,400	62,000	45,000	130,000
Scientists	44,900	34,500	42,200	48,000	50,000	52,000	55,000	53,000	60,000
Male	48,000	36,000	45,000	50,200	52,000	55,000	59,300	58,500	61,400
Female	39,000	32,000	39,400	43,000	42,300	45,000	47,200	43,600	50,000
White	45,000	34,500	42,000	48,000	50,000	53,000	56,400	54,000	60,000
Black	39,000	32,000	40,000	43,000	43,000	41,600	56,900	51,000	44,200
Hispanic	39,500	30,000	41,600	45,800	42,000	41,600	62,000	52,000	37,000
Asian/Pacific Islander	45,000	36,000	47,400	54,000	50,000	50,000	46,800	50,000	56,000
Other	41,600	36,000	41,600	45,000	42,500	52,400	50,000	S	S
Computer/math scientists	46,800	38,200	45,000	50,000	51,000	54,000	55,000	51,000	52,400
Male	49,000	39,600	46,800	52,000	53,000	55,000	58,000	54,000	57,000
Female	41,000	36,000	40,500	45,000	42,300	46,000	49,500	44,000	49,000
White	47,700	38,500	44,400	50,000	52,000	54,000	55,000	51,000	53,000
Black	40,000	33,000	41,000	44,000	42,000	50,000	59,100	52,400	40,000
Hispanic	42,000	35,000	45,000	49,000	42,000	37,000	60,000	28,800	S
Asian/Pacific Islander	47,000	40,000	50,000	55,000	50,100	49,200	49,500	39,000	43,000
Other	45,600	37,000	44,700	46,300	45,600	S	S	S	S
Life and related scientists	40,000	27,000	36,500	43,900	45,000	48,000	53,000	63,000	70,000
Male	42,500	27,600	39,500	45,000	45,700	48,000	55,000	63,000	72,300
Female	34,000	26,000	33,300	39,500	45,000	44,600	42,100	58,000	47,500
White	40,000	27,600	36,800	43,900	45,000	48,000	53,000	60,000	71,000
Black	37,000	28,800	35,400	41,000	44,000	42,200	49,000	S	S
Hispanic	35,000	23,500	37,000	39,000	37,000	40,000	62,000	S	60,000
Asian/Pacific Islander	39,900	26,000	32,400	50,000	50,000	55,000	48,400	63,000	81,000
Other	41,600	25,000	41,600	35,800	42,500	S	S	S	S
Physical and related scientists	45,000	31,200	42,000	50,000	52,000	55,000	62,300	54,100	57,000
Male	48,000	32,000	42,000	50,300	52,500	57,000	63,300	60,000	60,000
Female	37,500	30,000	40,000	43,000	43,000	41,100	45,900	32,800	49,300
White	45,800	31,600	42,000	50,000	52,000	56,000	65,000	55,000	60,000
Black	36,600	29,400	35,000	42,600	40,000	41,600	62,300	S	S
Hispanic	40,000	25,200	43,500	41,600	43,000	58,000	65,000	S	37,000
Asian/Pacific Islander	42,000	32,000	45,000	52,000	47,000	50,000	43,800	54,000	49,300
Other	35,000	33,400	S	35,000	67,600	44,000	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-29.

Median annual salaries of U.S. individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree						
		1-4	5-9	10-14	15-19	20-24	25-29	30-34
Social and related scientists	40,300	30,000	38,900	42,000	47,000	50,000	55,000	58,100
Male	45,000	31,000	40,000	45,800	50,000	52,000	58,000	55,000
Female	36,400	28,000	38,000	39,000	41,500	47,500	46,000	60,000
White	41,000	30,000	39,000	42,000	48,000	50,000	55,200	57,000
Black	34,200	30,000	35,000	38,400	44,400	34,200	34,000	S
Hispanic	36,000	32,500	33,000	46,000	40,000	51,000	53,000	S
Asian/Pacific Islander	42,000	35,000	43,000	48,000	43,200	46,000	30,000	61,000
Other	40,900	41,400	29,000	44,000	31,800	52,400	S	S
Engineers	50,000	40,000	47,000	53,600	56,000	60,000	60,000	61,000
Male	51,000	40,000	48,000	54,000	56,000	60,000	60,600	60,000
Female	43,200	39,000	45,000	51,000	48,400	48,000	51,000	37,400
White	50,100	40,000	47,000	54,000	56,000	60,000	62,000	61,200
Black	44,600	38,000	45,000	50,000	45,000	48,000	56,200	57,000
Hispanic	47,000	39,200	46,400	50,000	52,000	62,000	62,200	60,000
Asian/Pacific Islander	50,000	40,000	49,000	54,000	59,100	55,500	57,400	55,400
Other	49,700	39,600	45,000	59,000	55,000	S	S	S
Bachelor's								
S&E occupations	45,000	34,500	42,400	49,700	50,000	52,000	57,200	56,100
Male	46,800	35,000	43,700	50,000	51,000	53,300	59,000	58,000
Female	38,000	31,800	39,500	42,300	42,000	44,000	48,400	38,100
White	45,000	34,500	42,500	50,000	50,000	53,000	58,200	57,000
Black	40,000	32,000	40,000	44,000	43,000	42,200	57,600	49,900
Hispanic	40,100	33,000	42,400	46,000	47,000	43,000	60,100	51,400
Asian/Pacific Islander	43,000	35,000	44,500	48,000	50,000	46,700	50,000	51,800
Other	42,500	33,400	41,600	46,300	48,000	52,400	S	S
Scientists	41,000	30,500	40,000	46,000	47,000	48,000	52,200	50,000
Male	43,300	32,000	41,900	48,000	49,000	50,000	54,000	51,000
Female	36,500	29,000	37,500	41,000	41,600	43,000	48,400	39,000
White	41,600	30,500	40,000	46,000	48,000	49,300	52,900	50,000
Black	36,500	30,000	39,200	41,400	41,600	41,400	59,100	49,900
Hispanic	36,000	26,800	39,000	44,700	41,000	39,800	65,000	S
Asian/Pacific Islander	40,800	34,000	44,000	48,000	45,600	42,000	36,600	31,200
Other	41,600	33,400	41,600	46,300	S	52,400	S	S
Computer/math scientists	44,000	35,000	42,000	48,200	50,000	51,200	54,000	51,000
Male	46,500	35,000	44,000	50,000	51,500	53,000	58,200	52,400
Female	40,000	33,600	40,000	43,000	41,000	43,500	49,500	41,000
White	45,000	35,000	42,000	49,000	50,000	52,000	54,600	51,000
Black	38,500	31,200	40,000	43,400	41,600	45,500	59,100	51,000
Hispanic	39,800	32,500	42,000	48,000	45,000	31,000	S	S
Asian/Pacific Islander	42,000	36,000	45,000	49,000	46,000	43,500	39,000	30,000
Other	44,700	33,800	44,700	46,300	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-29.

Median annual salaries of U.S. individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Life and related scientists	32,200	23,500	30,000	35,300	38,000	36,700	46,000	47,800	53,000
Male	34,000	24,000	31,200	37,400	36,400	36,700	45,000	50,000	56,000
Female	30,000	22,800	28,000	34,600	43,000	35,000	52,500	S	29,000
White	32,200	24,000	29,100	35,100	37,300	36,000	46,000	46,200	56,000
Black	35,000	23,000	30,900	40,900	37,400	41,400	S	S	S
Hispanic	27,700	16,500	36,000	37,400	S	39,800	S	S	S
Asian/Pacific Islander	28,000	23,500	24,000	32,200	47,900	25,000	48,400	S	S
Other	41,600	S	S	S	S	S	S	S	S
Physical and related scientists	37,500	27,500	36,000	41,600	45,000	48,000	50,000	49,700	55,000
Male	38,900	27,300	36,000	42,800	46,100	49,100	55,000	50,000	55,000
Female	34,500	28,400	35,000	39,500	43,000	35,400	42,500	38,100	49,300
White	38,000	27,500	36,400	42,000	47,000	49,100	52,800	50,000	55,000
Black	36,000	25,500	34,000	42,600	36,000	42,100	S	S	S
Hispanic	30,000	25,200	25,000	40,300	25,000	S	S	S	S
Asian/Pacific Islander	33,300	31,000	33,000	31,200	41,600	36,600	33,300	34,000	S
Other	35,000	S	S	S	S	S	S	S	S
Social and related scientists	27,400	20,000	27,800	30,200	41,600	43,000	35,700	S	104,000
Male	30,000	22,700	30,000	36,000	44,400	36,000	49,000	S	100,000
Female	26,000	19,200	27,000	30,200	39,700	50,000	S	S	S
White	27,000	20,600	27,400	30,200	41,600	45,700	52,000	S	104,000
Black	28,700	20,000	31,000	32,000	43,000	33,700	S	S	S
Hispanic	28,500	17,700	29,700	S	S	S	S	S	S
Asian/Pacific Islander	30,000	20,000	S	S	S	S	S	S	S
Other	52,400	S	S	S	S	S	S	S	S
Engineers	48,000	36,500	45,000	52,000	52,000	55,100	60,000	60,000	60,000
Male	49,000	36,500	45,000	52,000	52,000	56,000	60,000	60,000	60,000
Female	41,600	37,000	44,200	48,000	45,800	48,500	51,000	27,700	68,600
White	48,900	36,600	45,000	52,000	52,000	57,200	60,000	60,000	60,900
Black	42,000	36,400	43,600	48,300	44,000	48,000	50,000	47,000	S
Hispanic	43,700	37,100	44,000	49,000	51,000	57,200	60,000	51,400	60,900
Asian/Pacific Islander	45,000	36,000	45,000	48,900	50,800	49,500	54,000	52,200	53,000
Other	49,700	34,000	40,000	59,000	54,600	S	S	S	S
Master's									
S&E occupations	50,000	43,000	50,000	55,200	56,700	60,000	60,000	60,000	60,000
Male	52,300	44,800	52,000	58,700	59,100	62,000	60,000	62,100	60,000
Female	42,000	38,000	44,000	45,500	43,200	44,000	44,000	50,000	49,400
White	50,400	43,000	50,000	55,200	56,700	60,000	59,800	60,000	60,000
Black	44,000	40,000	43,000	47,000	52,000	46,000	38,000	60,000	S
Hispanic	48,000	42,000	50,000	54,500	50,100	60,000	62,000	45,000	S
Asian/Pacific Islander	50,000	41,100	51,500	57,500	58,900	60,000	60,000	60,000	45,000
Other	42,000	42,000	36,000	S	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-29.

**Median annual salaries of U.S. individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)**

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Scientists	46,500	40,000	47,000	50,000	50,000	52,700	53,000	50,000	50,000
Male	50,000	42,000	50,000	55,600	52,000	56,000	55,500	50,700	50,000
Female	40,800	35,000	43,000	43,700	42,000	44,000	42,000	50,000	58,000
White	47,000	40,000	47,000	50,000	50,600	54,000	53,000	50,000	50,000
Black	40,000	36,000	40,000	42,000	43,000	39,800	37,000	S	S
Hispanic	40,000	35,000	45,000	49,900	39,500	40,000	S	S	S
Asian/Pacific Islander	47,700	40,000	51,000	57,500	48,000	50,300	57,000	66,600	S
Other	36,000	42,000	S	S	S	S	S	S	S
Computer/math scientists	50,800	45,000	52,000	55,100	56,700	57,200	53,700	50,000	46,000
Male	53,000	46,000	55,000	60,000	59,300	60,000	57,000	60,000	46,000
Female	45,000	42,000	47,000	48,000	50,000	50,600	46,800	50,000	S
White	52,000	45,000	52,000	55,000	58,200	57,200	51,800	50,000	46,000
Black	44,000	40,000	44,400	45,700	50,000	S	S	S	S
Hispanic	48,000	41,600	55,000	54,000	39,500	S	S	S	S
Asian/Pacific Islander	50,000	44,000	54,600	58,100	55,400	55,100	57,200	S	S
Other	42,000	42,000	S	S	S	S	S	S	S
Life and related scientists	38,000	28,000	36,000	44,300	44,000	45,100	42,000	45,000	62,000
Male	40,300	27,500	37,000	45,000	45,000	45,100	48,500	50,700	62,000
Female	34,700	28,300	33,500	41,600	40,400	42,000	33,600	S	S
White	38,300	28,000	36,000	45,000	43,500	45,100	42,000	45,000	62,000
Black	35,400	36,000	35,000	35,400	S	S	S	S	S
Hispanic	37,000	26,000	37,000	36,500	S	S	S	S	S
Asian/Pacific Islander	35,000	26,700	24,000	47,400	45,000	43,700	S	S	S
Other	S	S	S	S	S	S	S	S	S
Physical and related scientists	46,800	36,000	47,000	60,000	50,300	51,000	60,400	51,000	52,000
Male	48,000	38,200	45,600	60,000	52,400	56,000	60,400	61,800	60,000
Female	40,000	30,000	55,000	46,000	47,000	41,100	82,100	S	S
White	48,000	38,000	47,800	60,000	52,400	53,600	60,400	50,000	60,000
Black	39,000	33,000	44,000	S	S	S	S	S	S
Hispanic	39,000	13,500	S	S	S	S	S	S	S
Asian/Pacific Islander	40,000	30,000	41,000	52,000	47,000	48,600	48,000	S	S
Other	S	S	S	S	S	S	S	S	S
Social and related scientists	38,700	30,000	36,000	39,000	43,400	45,000	54,500	46,000	50,000
Male	40,000	30,000	33,300	41,600	47,000	48,000	55,000	46,000	43,000
Female	37,600	30,000	37,000	38,000	40,000	37,500	46,000	60,000	73,100
White	39,000	30,000	37,000	38,400	45,000	46,000	55,000	46,000	44,000
Black	32,000	30,000	31,500	40,000	38,400	37,100	S	S	S
Hispanic	35,000	33,000	33,000	50,700	S	S	S	S	S
Asian/Pacific Islander	39,000	28,300	S	48,000	S	S	S	S	S
Other	30,500	S	S	S	S	S	S	S	S
Engineers	55,200	46,000	55,000	60,000	62,400	65,800	65,000	68,200	64,600
Male	56,500	46,000	55,000	60,000	62,400	67,000	65,000	69,900	66,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-29.

Median annual salaries of U.S. individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	48,100	44,500	52,000	55,900	65,600	42,300	60,000	50,500	S
White	56,200	46,800	55,000	60,000	63,600	67,200	66,900	71,200	64,500
Black	52,000	44,500	51,000	57,600	62,000	S	S	S	S
Hispanic	52,000	46,000	51,000	60,000	55,900	72,000	72,000	S	S
Asian/Pacific Islander	52,200	43,000	52,000	57,300	60,400	60,300	60,000	60,000	S
Other	49,000	49,000	49,000	S	S	S	S	S	S
Doctorate									
S&E occupations	54,800	41,000	50,000	56,700	60,000	64,000	68,800	70,000	76,000
Male	57,000	43,000	52,000	59,100	60,000	65,000	70,000	70,600	77,500
Female	45,000	37,700	45,000	50,100	52,000	58,600	57,400	60,000	64,000
White	55,000	41,600	50,000	55,200	60,000	63,000	69,000	70,000	75,600
Black	46,200	40,000	49,200	50,400	49,000	58,000	51,000	61,000	S
Hispanic	50,000	37,000	45,200	51,000	55,000	66,300	65,000	135,000	110,000
Asian/Pacific Islander	54,000	40,000	53,000	62,500	65,000	66,000	70,000	70,000	81,000
Other	45,000	37,000	39,000	44,700	46,300	60,000	60,500	S	S
Scientists	52,000	38,000	48,000	54,000	58,000	61,000	65,000	70,000	74,900
Male	55,000	39,000	50,000	56,000	60,000	61,900	67,000	70,000	75,000
Female	44,300	36,600	44,800	50,000	51,700	58,000	57,000	60,000	64,000
White	52,500	39,500	48,000	54,000	58,000	61,000	66,000	70,000	73,600
Black	46,000	38,000	48,000	50,000	52,000	58,000	51,000	61,000	S
Hispanic	47,000	35,100	44,000	51,000	50,000	70,000	69,700	135,000	110,000
Asian/Pacific Islander	50,000	36,000	49,600	57,200	59,600	61,900	64,000	70,000	82,300
Other	44,900	37,000	39,000	44,000	45,600	60,000	44,900	S	S
Computer/math scientists	55,800	46,400	52,300	57,000	60,000	62,800	63,000	68,500	56,000
Male	57,600	50,000	54,000	57,000	61,400	62,700	63,000	68,500	56,000
Female	48,000	41,000	48,000	57,300	47,000	62,800	64,000	S	S
White	56,000	47,200	51,000	55,400	60,000	62,800	63,000	67,000	56,000
Black	45,000	44,000	75,000	60,000	60,000	51,000	S	S	S
Hispanic	47,000	38,500	48,000	45,000	50,000	S	S	S	S
Asian/Pacific Islander	56,300	50,000	55,000	62,000	68,000	65,500	63,000	96,000	S
Other	45,600	S	S	S	45,600	S	S	S	S
Life and related scientists	50,000	32,500	46,000	55,000	59,000	62,000	66,500	75,000	79,500
Male	53,000	33,300	47,000	56,000	60,000	62,300	68,500	76,000	80,000
Female	41,600	30,400	45,000	49,100	50,000	60,000	63,000	55,000	64,000
White	51,200	35,000	47,000	55,000	58,500	62,000	66,600	74,000	78,000
Black	46,200	34,000	46,200	40,000	60,000	44,000	48,000	S	S
Hispanic	40,000	26,000	36,000	60,000	59,000	58,000	150,000	S	110,000
Asian/Pacific Islander	44,000	26,400	41,000	56,800	59,000	60,000	58,200	63,000	65,000
Other	41,500	25,000	51,000	S	45,900	S	S	S	S
Physical and related scientists	58,000	40,000	54,000	60,000	65,000	65,300	70,000	72,000	72,000
Male	59,800	40,000	55,000	61,800	65,000	66,000	71,000	72,800	74,900

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-29.

Median annual salaries of U.S. individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	48,000	41,600	48,500	52,000	58,200	47,300	52,000	63,300	65,000
White	60,000	43,000	54,100	61,000	65,300	66,000	71,000	72,000	74,000
Black	41,600	32,600	43,500	50,000	58,000	58,000	S	S	S
Hispanic	52,000	45,200	58,000	50,000	43,000	70,000	S	S	S
Asian/Pacific Islander	51,500	34,000	54,000	59,200	62,000	65,000	65,000	80,000	S
Other	57,500	S	S	S	67,600	S	S	S	S
Social and related scientists	49,000	40,000	45,000	49,500	52,000	58,000	60,000	62,000	77,500
Male	50,600	40,000	47,000	50,000	52,300	59,000	62,000	63,000	77,500
Female	44,000	38,700	43,000	48,000	52,000	53,600	55,600	60,000	66,000
White	49,300	40,000	45,000	49,500	53,000	57,000	60,000	64,000	72,000
Black	46,500	38,000	44,000	52,000	48,000	59,000	52,000	S	S
Hispanic	48,200	40,000	43,600	51,000	53,400	73,000	50,000	S	S
Asian/Pacific Islander	47,000	41,000	43,200	48,800	42,000	52,000	80,000	S	S
Other	43,800	40,000	34,300	44,000	46,300	59,500	S	S	S
Engineers	63,500	52,000	61,000	68,000	70,000	73,000	77,500	77,000	90,000
Male	64,000	52,000	61,000	68,000	70,000	73,700	78,000	77,000	90,000
Female	57,000	50,800	60,000	65,000	69,800	60,000	S	S	S
White	65,000	53,000	60,300	67,000	70,000	73,700	77,500	78,000	90,000
Black	50,000	52,000	61,400	64,800	40,000	S	S	S	S
Hispanic	60,000	55,000	51,000	60,000	60,000	60,000	S	S	S
Asian/Pacific Islander	60,500	50,000	62,000	70,000	71,000	73,800	79,000	S	65,000
Other	60,000	45,000	S	S	75,000	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

Appendix table 3-30.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
		All degree levels^a							
S&E degree fields	51,000	35,000	48,000	59,000	60,700	59,000	60,000	63,000	60,000
Male	59,000	40,000	52,000	62,000	67,600	64,200	67,200	70,000	65,000
Female	38,600	30,000	39,000	46,000	45,000	43,100	42,500	42,300	41,000
White	52,000	35,000	48,000	60,000	62,700	60,000	63,000	65,000	60,000
Black	40,000	32,000	35,800	45,000	44,000	45,000	46,000	41,000	45,000
Hispanic	43,000	33,000	44,000	50,000	53,000	55,000	55,000	56,000	50,000
Asian/Pacific Islander	55,000	47,000	58,000	64,000	61,000	59,000	60,000	55,000	52,800
Other	41,000	35,000	40,000	58,000	50,000	46,900	51,000	61,000	51,400
Sciences	45,000	32,000	42,000	52,000	55,000	52,900	55,000	59,000	53,000
Male	52,000	35,000	46,000	58,000	62,500	58,800	60,000	63,000	60,000
Female	37,000	29,000	36,500	45,000	44,000	43,000	42,500	42,000	41,000
White	47,000	31,000	42,000	52,000	57,000	54,100	56,000	60,000	55,000
Black	37,000	30,000	34,000	42,000	40,000	43,100	46,000	41,000	45,000
Hispanic	39,000	30,000	40,000	48,000	44,000	54,000	46,000	40,000	40,000
Asian/Pacific Islander	50,000	40,000	52,000	60,300	55,000	50,000	50,000	51,000	47,000
Other	39,000	33,000	35,000	52,000	46,000	46,900	51,000	61,000	50,000
Computer/math sciences	61,600	48,000	58,000	65,000	71,000	71,000	66,000	75,000	50,000
Male	65,000	50,000	60,000	69,000	74,000	75,000	68,000	80,000	68,400
Female	52,000	42,000	50,300	59,000	60,000	52,000	53,600	64,000	46,700
White	63,000	46,500	58,000	68,000	72,000	73,000	66,000	78,000	50,000
Black	49,900	42,000	50,000	50,000	55,500	48,000	59,000	64,000	S
Hispanic	52,000	45,000	60,000	52,000	67,500	89,000	72,000	15,600	S
Asian/Pacific Islander	63,000	56,000	65,000	67,000	75,000	68,000	69,000	60,000	92,000
Other	55,000	55,000	40,000	52,000	S	29,000	S	S	S
Life and related science	41,000	28,000	38,400	45,000	52,000	50,000	50,000	50,000	50,000
Male	46,000	30,000	40,000	48,000	55,500	53,900	52,000	57,400	53,000
Female	35,900	27,000	36,000	42,000	43,000	43,300	40,000	40,000	43,300
White	42,000	28,000	39,000	45,000	53,000	50,000	50,000	50,000	53,000
Black	36,000	27,300	33,300	40,000	46,000	41,500	45,000	40,000	45,000
Hispanic	36,000	29,800	36,000	46,000	43,000	55,000	49,000	40,000	50,000
Asian/Pacific Islander	41,600	32,000	45,000	51,900	50,000	45,000	52,000	45,300	48,000
Other	36,000	29,000	39,000	58,000	40,000	46,900	41,000	S	S
Physical and related sciences	56,000	33,800	50,000	58,000	65,000	65,000	65,000	70,000	65,000
Male	60,000	35,000	52,000	59,300	68,000	68,000	65,000	75,000	70,000
Female	42,000	30,000	41,000	51,900	56,000	48,500	52,000	40,000	41,000
White	58,000	32,000	48,500	58,500	67,000	68,000	65,000	75,000	66,000
Black	44,000	37,000	48,000	48,000	56,000	37,000	43,000	50,000	62,000
Hispanic	43,000	32,000	43,000	51,000	45,000	52,000	40,000	82,000	43,000
Asian/Pacific Islander	55,000	47,000	57,500	60,000	48,500	55,000	50,000	54,000	65,000
Other	50,000	32,500	60,000	68,200	30,000	29,000	51,000	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-30.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Social and related science	40,000	30,000	38,000	45,000	48,000	50,000	51,900	52,000	50,000
Male	48,000	33,600	40,000	50,400	55,000	53,000	60,000	59,700	60,000
Female	35,000	28,000	35,000	41,000	41,000	41,000	41,000	42,000	40,000
White	42,000	30,000	39,000	47,000	50,000	50,000	53,000	53,000	52,000
Black	35,000	29,000	31,200	40,000	36,300	43,000	44,000	40,000	28,200
Hispanic	36,000	30,000	40,000	43,000	40,000	48,000	45,000	42,900	40,000
Asian/Pacific Islander	39,000	35,000	42,000	50,000	34,500	42,000	42,000	46,000	30,000
Other	37,000	33,000	35,000	42,000	46,000	55,000	58,000	S	S
Engineering	65,000	49,000	60,000	69,000	72,000	75,000	78,800	75,000	69,000
Male	67,000	50,000	60,000	69,500	73,000	75,000	79,200	75,000	70,000
Female	55,000	47,000	58,000	65,000	60,300	60,000	41,000	56,400	52,000
White	67,000	48,000	60,000	70,000	73,000	75,900	80,000	80,000	70,000
Black	55,000	45,000	56,000	62,000	65,000	63,000	53,000	S	45,000
Hispanic	56,500	46,000	55,000	60,000	62,300	74,000	72,400	60,000	70,500
Asian/Pacific Islander	61,000	54,000	63,200	68,800	69,600	70,000	70,000	62,000	59,000
Other	60,000	44,000	55,000	63,000	60,000	73,000	S	S	S
Bachelor's									
S&E degree fields	48,000	32,000	44,000	55,000	60,000	54,000	58,000	60,000	58,800
Male	55,000	37,000	48,000	60,000	65,000	60,000	63,000	65,000	63,000
Female	35,000	28,000	35,000	45,000	42,400	40,000	40,000	41,700	41,000
White	50,000	32,000	45,000	56,100	60,000	56,000	60,000	62,000	60,000
Black	37,000	30,000	34,000	43,000	41,000	42,000	46,000	41,000	43,800
Hispanic	40,000	31,500	40,700	50,000	48,000	54,300	49,000	50,000	50,000
Asian/Pacific Islander	48,000	39,000	50,000	59,000	54,000	50,000	50,000	50,100	50,000
Other	39,000	33,000	35,000	57,000	50,000	46,900	51,000	50,000	50,000
Sciences	42,000	30,000	39,500	50,000	52,000	50,000	50,000	54,000	50,000
Male	50,000	33,000	42,000	54,200	60,000	54,100	56,600	60,000	60,000
Female	35,000	27,000	35,000	42,000	40,000	40,000	40,000	41,000	41,000
White	43,000	29,500	40,000	50,000	54,500	50,500	51,600	57,000	52,000
Black	35,000	29,000	32,300	40,000	37,000	42,000	45,000	40,000	40,000
Hispanic	36,000	30,000	37,000	47,000	43,000	48,000	45,000	38,700	40,000
Asian/Pacific Islander	41,000	35,000	45,000	59,000	45,000	45,000	45,000	46,000	46,000
Other	36,000	29,000	30,000	40,500	46,000	42,000	51,000	50,000	50,000
Computer/math sciences	60,000	44,000	54,000	63,700	70,000	70,000	62,000	72,200	50,000
Male	62,500	46,000	57,000	66,000	72,000	73,000	63,400	80,000	58,000
Female	50,000	38,000	50,000	58,000	60,000	51,000	51,600	65,600	46,700
White	60,000	44,000	55,000	65,000	70,000	72,000	62,000	73,000	50,000
Black	47,300	40,000	45,000	49,900	55,500	48,000	59,000	S	S
Hispanic	50,000	45,000	59,000	51,000	62,000	96,000	S	S	S
Asian/Pacific Islander	58,000	47,000	52,000	63,000	70,000	68,000	66,000	65,000	S
Other	40,000	45,000	S	39,000	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-30.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Life and related sciences	38,000	27,000	35,000	40,000	46,500	46,000	46,000	45,300	50,000
Male	42,000	28,000	36,000	42,500	53,800	50,000	50,000	50,000	50,000
Female	33,000	26,000	33,000	38,000	39,900	40,000	39,000	38,000	43,300
White	39,000	26,600	35,000	40,000	48,000	47,000	48,000	50,000	50,000
Black	35,000	25,500	32,000	36,000	41,700	40,000	45,000	50,000	45,000
Hispanic	35,000	28,500	35,000	46,000	43,000	54,000	40,000	29,000	S
Asian/Pacific Islander	38,000	30,000	36,000	45,000	45,000	42,000	45,000	42,000	41,600
Other	34,000	29,000	25,000	S	S	S	S	S	S
Physical and related sciences	50,000	30,000	42,000	50,000	58,000	59,000	60,000	60,000	65,000
Male	53,000	31,000	45,000	50,000	60,000	60,500	60,000	70,000	65,000
Female	38,000	27,500	37,000	48,000	46,000	42,300	51,600	39,000	41,000
White	51,000	28,500	41,600	52,000	60,700	62,000	60,000	70,000	65,000
Black	43,000	36,000	48,000	43,000	44,000	42,000	43,000	38,000	62,000
Hispanic	41,000	30,000	35,000	47,000	58,000	45,000	39,900	S	43,000
Asian/Pacific Islander	42,500	38,000	50,000	35,000	39,000	41,400	48,000	51,000	65,000
Other	40,500	32,500	S	S	S	S	S	S	S
Social and related sciences	39,000	28,800	36,000	44,000	45,000	46,000	50,000	52,000	50,000
Male	45,000	32,000	40,000	50,000	53,000	51,400	58,000	57,200	58,000
Female	32,000	26,900	32,300	40,000	39,000	39,000	40,000	41,000	40,000
White	40,000	28,000	37,000	44,900	48,000	48,100	50,000	52,000	50,000
Black	33,000	27,100	31,000	33,000	35,000	42,000	43,500	40,000	28,200
Hispanic	35,000	28,800	37,000	42,000	38,600	45,000	45,000	50,000	40,000
Asian/Pacific Islander	37,000	33,000	42,000	48,000	30,000	43,000	39,500	46,000	30,000
Other	35,000	30,000	28,800	38,000	46,000	42,000	63,000	S	S
Engineering	62,000	45,000	57,000	65,000	70,000	71,000	75,000	72,000	66,000
Male	63,100	45,000	57,000	65,000	71,000	72,000	75,400	72,000	67,000
Female	52,000	45,000	56,000	62,000	60,000	54,000	36,000	56,400	50,000
White	65,000	45,000	58,000	66,500	72,000	73,000	77,500	75,000	68,000
Black	53,700	45,000	54,000	60,000	65,000	57,700	53,000	S	S
Hispanic	55,000	45,000	51,000	59,000	60,000	74,000	70,000	60,000	70,500
Asian/Pacific Islander	54,200	46,000	55,000	59,000	60,000	60,000	60,000	54,200	52,800
Other	57,000	41,000	55,000	63,000	60,000	73,000	S	S	S
Master's									
S&E degree fields	60,000	47,000	60,000	63,500	63,000	63,000	68,000	67,000	72,100
Male	65,000	52,000	64,000	70,000	73,000	71,400	71,000	75,000	73,000
Female	45,000	38,500	47,000	50,000	50,000	50,000	48,000	44,700	40,000
White	60,000	45,000	58,000	63,000	63,000	63,200	68,000	68,000	72,000
Black	48,000	42,000	49,400	45,000	55,000	53,500	45,000	50,000	S
Hispanic	52,000	40,000	55,000	61,000	58,000	60,000	72,400	75,000	S
Asian/Pacific Islander	63,500	57,000	67,200	70,000	73,000	60,000	70,000	72,800	85,000
Other	53,000	45,000	50,000	58,000	39,000	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-30.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Sciences	52,000	40,000	51,000	54,800	58,000	58,000	60,000	60,000	59,700
Male	60,000	46,000	59,000	60,000	68,000	60,000	64,000	61,000	72,100
Female	44,000	36,000	44,000	48,000	49,000	50,000	48,000	44,000	39,000
White	52,000	38,300	50,000	54,000	58,500	59,000	60,000	60,000	60,000
Black	45,000	37,000	46,000	45,000	51,000	50,000	45,000	50,000	S
Hispanic	45,000	36,000	45,000	53,000	45,000	59,000	54,000	40,000	S
Asian/Pacific Islander	60,000	55,000	65,500	65,000	70,000	48,500	50,000	55,000	48,000
Other	45,000	35,000	48,000	58,000	39,000	S	S	S	S
Computer/math sciences	69,000	60,000	65,000	74,000	80,000	75,000	79,000	78,000	87,000
Male	71,000	60,000	68,000	80,000	82,000	78,000	80,000	80,000	90,000
Female	60,000	55,000	58,000	63,000	69,000	64,000	56,100	56,000	S
White	69,600	58,000	63,000	75,000	80,000	75,400	79,000	80,000	87,000
Black	61,000	54,800	63,000	64,000	70,000	54,000	S	S	S
Hispanic	70,000	50,000	70,000	70,000	80,000	S	S	S	S
Asian/Pacific Islander	69,000	60,000	72,000	72,000	80,000	66,000	97,700	S	S
Other	55,000	S	S	S	S	S	S	S	S
Life and related sciences	46,400	34,000	42,000	44,000	54,000	50,000	50,000	52,000	58,000
Male	49,000	35,000	42,000	43,000	61,000	53,000	52,000	60,000	72,000
Female	42,000	34,000	41,000	44,300	49,500	48,000	48,000	41,000	S
White	47,500	34,000	40,700	44,000	56,000	52,000	50,000	55,500	40,000
Black	47,500	30,000	49,400	44,000	52,000	50,000	51,000	S	S
Hispanic	44,000	30,000	40,000	46,000	S	70,000	S	S	S
Asian/Pacific Islander	42,400	35,000	48,000	42,500	51,000	39,000	43,800	S	S
Other	40,000	S	S	S	S	S	S	S	S
Physical and related sciences	57,500	38,000	55,000	65,000	72,000	67,400	60,000	59,000	60,000
Male	60,000	35,000	60,000	68,000	72,000	70,000	60,000	67,500	74,000
Female	45,000	40,000	46,000	51,900	60,000	60,600	57,000	40,000	S
White	60,000	36,000	55,000	68,000	73,000	70,000	60,000	59,000	69,000
Black	50,000	45,000	44,700	S	S	S	S	S	S
Hispanic	43,000	32,000	52,000	S	31,200	S	S	S	S
Asian/Pacific Islander	53,000	50,000	56,000	60,000	51,000	50,000	42,000	55,000	S
Other	39,000	S	S	S	S	S	S	S	S
Social and related sciences	45,000	36,000	44,000	48,000	49,000	53,000	55,000	50,000	47,000
Male	52,000	38,000	48,900	51,000	60,000	58,500	60,000	60,000	55,500
Female	41,000	35,000	42,000	45,000	45,000	49,900	44,000	44,700	S
White	46,900	35,200	44,000	48,000	49,000	54,000	56,000	50,000	55,500
Black	43,000	35,000	42,000	43,600	50,000	55,000	44,000	S	S
Hispanic	42,000	35,000	44,000	42,000	45,000	54,000	S	S	S
Asian/Pacific Islander	40,000	40,000	36,500	61,000	35,000	41,700	50,000	S	S
Other	40,000	33,000	41,000	S	S	S	S	S	S
Engineering	70,000	56,000	67,000	75,000	79,000	84,000	85,000	90,000	75,500
Male	72,000	56,000	68,000	76,500	80,000	85,000	85,000	90,000	75,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-30.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	61,000	53,000	64,000	75,000	72,000	72,500	61,000	S	S
White	73,000	55,000	67,000	75,300	80,000	87,000	90,000	90,000	74,000
Black	60,000	53,000	68,200	75,000	78,000	63,000	S	S	S
Hispanic	64,000	50,000	66,000	74,000	78,000	65,000	72,400	S	S
Asian/Pacific Islander	68,000	57,900	68,000	76,000	75,000	74,000	75,000	80,000	85,000
Other	60,000	54,000	62,000	S	S	S	S	S	S
Doctorate									
S&E degree fields	70,000	50,000	62,000	70,000	78,000	82,500	85,000	90,000	89,000
Male	75,000	55,000	65,000	73,000	80,000	84,500	87,600	90,000	90,000
Female	56,000	43,000	54,300	60,000	67,000	71,600	72,000	80,000	75,000
White	70,000	48,000	60,000	70,000	77,000	82,000	85,000	90,000	89,100
Black	60,000	46,000	56,000	60,000	71,500	76,000	75,000	100,000	55,000
Hispanic	62,000	41,000	60,000	60,000	85,000	90,000	90,000	85,000	135,000
Asian/Pacific Islander	70,000	58,000	68,000	75,000	82,000	85,000	88,000	98,000	85,000
Other	65,000	60,000	49,000	53,000	65,000	80,000	78,000	61,000	S
Sciences	67,000	45,000	57,800	66,000	75,000	80,000	82,000	88,000	86,000
Male	71,000	46,000	60,000	70,000	78,900	82,000	84,300	89,000	89,000
Female	55,000	41,000	53,000	60,000	67,000	70,000	72,000	80,000	75,000
White	68,000	44,000	57,000	66,600	75,000	80,000	82,000	88,000	87,000
Black	59,000	45,000	53,500	59,000	70,000	74,000	75,000	100,000	55,000
Hispanic	60,000	40,000	56,000	58,000	85,000	85,000	89,500	85,000	135,000
Asian/Pacific Islander	64,000	46,000	60,500	68,000	75,000	80,000	82,000	85,000	85,000
Other	61,000	60,000	49,000	49,000	65,000	80,000	68,500	61,000	S
Computer/math sciences	72,800	64,000	67,000	74,000	76,000	75,000	83,000	83,000	90,000
Male	75,000	66,000	70,000	75,000	78,000	77,000	85,000	83,000	92,000
Female	64,600	50,000	62,000	70,000	72,000	70,000	68,000	69,900	S
White	73,000	59,000	63,500	73,200	75,000	75,600	83,200	83,000	85,000
Black	67,000	65,000	58,000	74,000	75,000	70,000	80,000	S	S
Hispanic	72,000	60,000	65,000	57,400	95,000	114,000	72,000	85,000	S
Asian/Pacific Islander	70,000	66,500	70,000	75,700	80,000	70,000	85,000	69,100	92,000
Other	80,000	80,000	S	S	S	S	S	S	S
Life and related sciences	64,000	36,000	55,000	65,000	76,000	82,000	80,800	95,000	82,000
Male	68,000	36,000	58,000	67,000	80,000	85,000	82,200	95,000	85,000
Female	55,000	36,000	53,000	63,000	69,000	72,000	80,000	89,100	53,000
White	65,000	36,900	55,000	67,000	75,000	82,000	82,000	93,000	85,000
Black	57,000	43,000	60,000	53,000	65,000	77,000	75,000	96,000	84,000
Hispanic	62,000	38,000	60,000	46,000	120,000	108,000	128,500	95,000	S
Asian/Pacific Islander	56,000	34,000	55,000	66,000	82,000	80,000	80,000	100,000	42,700
Other	61,000	35,000	54,000	65,000	108,000	63,000	S	S	S
Physical and related sciences	75,000	52,000	65,000	72,900	84,000	87,500	90,000	90,000	92,000
Male	78,000	53,000	65,000	75,000	85,000	88,500	90,000	90,000	93,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-30.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1999
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1–4	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
Female	63,000	50,000	63,000	59,000	79,000	84,000	79,400	65,400	83,000
White	77,000	50,000	65,000	72,000	86,000	88,000	90,000	90,000	92,000
Black	67,000	42,900	70,000	67,000	76,000	75,000	85,000	S	S
Hispanic	70,000	46,000	62,000	81,000	80,000	85,000	76,000	85,000	S
Asian/Pacific Islander	70,000	60,000	70,000	73,000	73,000	87,000	88,000	80,000	100,000
Other	78,000	58,000	52,000	S	66,500	88,500	S	S	S
Social and related sciences	62,000	45,600	53,000	61,000	68,800	72,000	76,000	76,000	83,000
Male	68,000	48,000	55,000	63,500	71,200	75,000	79,500	77,000	84,000
Female	54,000	43,000	51,000	58,000	60,600	67,600	70,000	73,000	80,000
White	62,800	45,000	54,000	61,200	69,500	72,000	75,000	76,100	83,000
Black	57,000	46,000	50,000	59,000	69,000	74,000	70,000	103,000	S
Hispanic	53,000	42,000	53,000	52,500	62,000	68,000	77,000	S	S
Asian/Pacific Islander	60,000	50,000	51,500	62,000	68,000	68,000	99,000	75,000	S
Other	53,000	45,000	45,000	47,000	55,000	58,800	67,600	S	S
Engineering	81,000	67,000	78,000	85,000	90,000	93,000	99,100	105,000	100,000
Male	83,000	68,000	78,000	85,000	90,000	93,000	99,100	105,000	100,000
Female	68,000	60,000	72,000	75,000	85,000	103,000	70,000	S	S
White	85,000	67,000	78,000	87,000	92,000	96,000	99,100	104,000	100,000
Black	72,000	55,000	73,000	74,000	85,000	87,000	63,000	S	S
Hispanic	70,000	55,000	70,300	65,000	85,000	100,000	110,000	S	S
Asian/Pacific Islander	80,000	69,000	78,000	81,000	90,000	90,000	98,000	110,000	100,000
Other	84,100	67,000	84,100	S	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-31.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
		All degree levels^a							
S&E degree fields	48,000	32,000	45,000	52,000	55,000	54,200	58,000	62,500	55,000
Male	52,300	36,000	50,000	57,000	60,000	60,000	63,000	69,000	60,000
Female	36,000	27,000	37,500	43,000	41,200	40,500	40,400	41,000	40,000
White	49,000	31,000	45,000	53,000	56,000	55,000	60,000	65,000	57,000
Black	37,200	29,000	36,000	39,000	41,000	43,000	45,000	42,000	46,500
Hispanic	41,800	30,000	40,000	50,000	50,000	50,000	52,500	59,000	45,000
Asian/Pacific Islander	50,000	40,000	50,000	56,000	54,000	55,000	53,000	50,000	49,000
Other	37,000	25,000	38,000	41,800	50,000	46,000	55,000	65,000	62,000
Sciences	42,000	28,800	40,000	48,000	50,000	50,000	52,000	55,000	50,000
Male	49,300	31,500	45,000	52,400	54,000	54,000	58,000	63,500	56,000
Female	35,000	26,000	35,000	41,000	40,000	40,000	40,000	40,700	40,000
White	43,000	28,000	40,000	49,500	50,000	50,000	53,000	59,000	52,000
Black	36,000	27,000	33,000	37,000	40,000	41,500	44,000	40,000	46,500
Hispanic	37,000	27,000	37,000	46,000	46,000	49,000	50,000	52,000	32,000
Asian/Pacific Islander	44,000	36,000	45,000	53,600	50,000	50,000	45,000	44,600	37,800
Other	34,000	25,000	36,000	40,000	41,600	46,000	50,000	65,500	S
Computer/math sciences	53,300	40,000	50,000	58,000	64,000	65,000	60,000	65,000	48,000
Male	57,000	43,000	54,000	60,000	66,000	67,700	65,000	72,000	60,000
Female	45,000	35,000	46,500	53,000	56,000	50,000	43,500	46,500	42,000
White	55,000	40,000	50,900	59,000	65,000	65,000	60,300	67,000	50,000
Black	42,000	34,000	40,000	45,000	47,000	48,000	49,000	40,000	S
Hispanic	48,000	35,000	48,000	50,000	61,500	75,000	68,000	28,000	S
Asian/Pacific Islander	54,000	48,000	52,000	62,000	65,000	65,000	50,000	50,000	26,000
Other	50,000	28,000	60,000	45,000	S	45,000	60,000	S	S
Life and related science	40,000	26,200	36,000	43,000	45,000	47,500	46,000	52,000	45,000
Male	43,500	28,000	37,200	47,000	50,000	50,000	50,000	60,000	48,000
Female	34,500	25,000	35,000	39,300	39,000	39,000	39,800	39,000	35,000
White	40,000	26,000	36,000	43,800	45,000	48,000	48,000	54,600	45,000
Black	36,000	25,000	36,000	36,000	37,000	41,000	45,000	40,000	49,000
Hispanic	40,000	28,000	34,000	45,000	50,000	49,000	45,600	51,000	45,000
Asian/Pacific Islander	39,000	30,000	39,000	50,000	42,000	50,000	40,000	45,000	40,000
Other	35,000	25,000	25,000	43,500	41,600	46,000	35,000	S	S
Physical and related sciences	51,900	32,000	45,000	54,000	60,000	60,000	61,600	67,000	65,000
Male	55,000	33,000	48,000	55,000	62,000	60,000	65,000	70,000	67,000
Female	38,500	27,500	38,500	47,000	50,000	52,000	50,000	36,400	50,000
White	53,000	30,000	45,500	55,000	60,000	60,000	62,000	70,000	65,000
Black	40,000	32,000	41,000	35,000	52,000	40,000	52,400	93,700	15,000
Hispanic	42,000	32,000	35,000	44,300	50,000	45,000	75,000	43,000	30,000
Asian/Pacific Islander	47,000	40,000	43,000	48,000	53,000	55,000	52,000	43,000	50,000
Other	49,000	36,500	55,000	40,000	S	54,000	50,000	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-31.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Social and related science	38,500	27,000	36,000	43,200	45,000	48,000	50,000	51,000	52,000
Male	45,000	29,500	40,000	50,000	50,000	50,000	56,000	57,000	58,000
Female	32,500	25,000	33,000	39,600	40,000	39,500	40,400	42,500	38,000
White	40,000	27,000	37,000	45,000	46,000	48,300	50,000	54,000	54,000
Black	33,000	26,000	30,000	35,000	38,000	41,000	42,600	36,400	46,500
Hispanic	34,000	25,000	36,000	42,000	43,000	48,000	43,000	56,500	40,000
Asian/Pacific Islander	36,000	29,100	37,000	40,000	38,000	38,800	45,000	40,000	27,000
Other	32,000	24,000	32,500	40,000	40,100	42,000	43,700	S	S
Engineering	60,000	43,500	55,000	60,000	66,000	70,000	72,000	74,700	61,000
Male	60,000	44,000	55,000	60,000	66,000	70,000	73,000	75,000	61,000
Female	50,000	42,000	52,300	56,000	60,000	50,000	44,000	50,000	58,200
White	60,000	43,000	55,000	60,000	67,000	70,000	75,000	75,000	62,000
Black	50,000	41,000	50,000	54,000	60,000	57,000	54,000	66,000	S
Hispanic	52,000	40,800	50,000	60,000	59,000	65,000	58,500	70,000	60,000
Asian/Pacific Islander	55,000	47,000	55,000	60,000	62,000	66,000	62,000	60,000	60,000
Other	50,000	38,000	55,000	60,000	70,000	68,600	S	S	70,000
Bachelor's									
S&E degree fields	44,000	29,400	42,000	50,000	51,000	50,000	53,800	60,000	54,600
Male	50,000	33,000	45,000	54,000	57,000	55,000	60,000	65,000	58,000
Female	33,000	25,000	33,700	40,300	38,800	38,000	39,800	40,700	40,000
White	45,000	29,000	42,000	51,000	53,000	51,100	55,000	63,000	55,000
Black	35,200	27,000	33,300	37,000	40,000	41,000	45,000	40,000	45,000
Hispanic	40,000	28,000	38,000	48,000	49,500	48,100	50,000	56,500	45,000
Asian/Pacific Islander	42,000	35,000	45,000	50,000	45,000	47,000	49,000	45,000	44,000
Other	33,000	25,000	37,000	40,000	44,000	46,000	50,000	69,000	59,800
Sciences	40,000	27,000	37,500	45,000	45,000	46,000	50,000	52,000	50,000
Male	45,000	30,000	41,000	50,000	50,000	50,000	53,900	60,000	53,900
Female	32,000	25,000	32,000	40,000	38,000	38,000	39,800	40,000	40,000
White	40,000	26,800	38,000	47,000	47,000	48,000	50,000	55,000	50,000
Black	34,000	25,200	32,000	35,000	38,000	40,000	44,000	40,000	45,000
Hispanic	35,000	26,000	35,000	44,000	45,000	46,000	48,000	52,000	40,000
Asian/Pacific Islander	38,000	30,000	41,000	48,000	40,000	45,000	40,000	41,000	35,400
Other	30,800	25,000	36,000	40,000	37,000	46,000	50,000	S	S
Computer/math sciences	50,000	36,500	49,000	55,000	60,800	60,000	54,000	65,000	46,000
Male	54,000	39,000	50,000	58,000	65,000	65,000	60,000	73,100	55,000
Female	43,000	34,000	45,000	51,800	54,000	49,200	40,000	47,900	40,000
White	52,000	37,000	50,000	55,400	62,400	65,000	55,000	67,000	48,000
Black	40,000	32,000	40,000	45,700	45,000	46,000	50,000	40,000	S
Hispanic	45,000	34,000	42,000	50,000	55,000	70,000	65,000	S	S
Asian/Pacific Islander	50,000	40,000	50,000	58,700	60,000	60,000	42,000	50,000	S
Other	50,000	26,000	S	33,000	S	S	57,500	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-31.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Life and related sciences	36,000	25,000	33,000	40,000	41,000	44,000	40,800	49,000	40,000
Male	40,000	26,000	35,000	42,000	45,000	46,000	47,000	56,000	46,000
Female	31,700	24,000	32,000	36,000	36,600	37,500	37,700	34,600	35,000
White	36,000	25,000	33,000	40,000	42,000	44,500	42,000	50,000	40,000
Black	35,000	24,000	32,500	35,000	32,000	40,000	40,800	40,000	45,000
Hispanic	35,000	28,000	30,000	40,400	50,000	47,000	27,000	50,900	S
Asian/Pacific Islander	35,000	30,000	35,000	40,000	35,000	40,000	39,300	40,700	40,000
Other	29,000	25,000	20,800	27,000	S	S	S	S	S
Physical and related sciences	45,200	27,700	39,000	49,500	52,000	54,000	56,500	58,500	57,000
Male	50,000	30,000	42,000	50,000	53,800	55,000	58,700	65,000	60,000
Female	35,000	24,000	32,700	41,000	48,000	45,000	49,200	38,600	50,000
White	48,000	27,200	40,000	50,000	55,000	57,000	58,000	63,000	60,000
Black	40,000	31,000	41,000	35,000	52,000	40,000	52,400	93,700	S
Hispanic	39,500	30,000	33,000	43,800	50,000	37,000	75,000	S	30,000
Asian/Pacific Islander	38,600	32,000	37,000	36,000	38,000	45,000	40,000	40,000	40,000
Other	47,000	15,600	S	S	S	S	S	S	S
Social and related sciences	36,000	25,000	34,000	40,700	42,000	44,000	48,000	50,000	52,000
Male	42,000	28,000	38,000	47,000	48,000	50,000	54,000	56,500	58,000
Female	30,000	24,600	30,000	36,000	36,300	37,000	39,000	41,900	40,000
White	37,000	25,200	35,000	42,500	45,000	45,000	50,000	52,000	52,000
Black	31,000	25,000	30,000	34,000	36,600	38,000	42,600	36,000	42,000
Hispanic	32,000	25,000	35,000	42,000	40,000	45,000	43,000	56,500	S
Asian/Pacific Islander	35,000	28,000	35,000	39,000	36,400	38,000	41,200	40,000	27,000
Other	28,500	24,000	32,500	40,000	35,000	40,000	39,400	S	S
Engineering	56,000	40,000	50,000	59,000	65,000	66,000	69,000	72,000	60,000
Male	58,000	40,000	50,000	59,700	65,000	67,000	69,000	72,000	60,000
Female	48,000	40,000	50,000	54,000	56,000	50,000	36,000	50,000	64,300
White	59,000	40,000	51,000	60,000	65,000	68,000	71,000	75,000	61,000
Black	49,000	40,000	48,000	53,000	60,000	50,000	50,000	S	S
Hispanic	50,000	38,500	48,000	60,000	59,000	62,400	55,000	67,000	60,000
Asian/Pacific Islander	50,000	40,000	50,000	51,000	54,000	50,000	56,000	51,000	50,000
Other	50,000	38,000	58,000	S	S	68,600	S	S	S
Master's									
S&E degree fields	54,000	43,000	54,000	58,200	60,000	60,000	64,000	65,000	60,000
Male	60,000	48,000	58,000	65,000	65,000	68,000	70,000	70,000	70,000
Female	42,500	35,000	46,000	45,000	45,100	50,000	43,000	44,000	35,000
White	55,000	40,000	54,000	59,000	60,000	61,500	65,000	65,000	60,000
Black	44,000	37,400	44,000	42,000	44,000	50,000	45,000	65,000	S
Hispanic	50,000	40,000	52,000	58,000	48,000	67,000	50,000	70,000	45,000
Asian/Pacific Islander	55,000	50,000	57,000	62,500	61,000	65,000	62,000	56,000	63,800
Other	45,000	35,000	50,900	46,000	61,000	S	55,000	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-31.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Sciences	50,000	37,000	49,000	50,000	52,000	55,000	55,000	55,000	59,700
Male	55,000	42,000	52,000	60,000	60,000	58,000	60,000	62,000	71,600
Female	41,000	33,000	43,000	43,500	44,000	50,000	43,000	42,200	35,000
White	50,000	35,000	50,000	50,000	53,000	55,000	56,900	56,200	59,700
Black	42,000	35,000	40,000	40,000	43,000	49,000	43,000	S	S
Hispanic	45,000	33,000	46,000	50,000	47,000	65,000	40,000	74,000	S
Asian/Pacific Islander	50,000	48,000	50,000	58,000	59,000	50,000	48,100	48,000	60,000
Other	40,000	26,500	50,900	40,000	S	S	70,000	S	S
Computer/math sciences	60,000	52,000	58,000	69,000	67,000	68,000	70,000	63,500	68,000
Male	64,800	53,000	60,000	72,000	70,000	72,000	71,000	67,500	84,000
Female	53,000	48,000	50,000	60,000	60,500	58,000	55,000	30,000	S
White	62,000	52,600	59,000	69,300	68,000	68,000	71,000	63,500	68,000
Black	47,600	47,000	50,000	45,000	47,600	49,000	43,000	S	S
Hispanic	65,000	45,000	72,500	64,100	S	80,000	S	S	S
Asian/Pacific Islander	59,000	53,000	57,000	69,300	65,000	78,000	66,000	S	S
Other	70,000	S	S	S	S	S	S	S	S
Life and related sciences	44,000	31,000	40,000	44,300	51,000	50,000	45,000	52,000	75,000
Male	48,000	30,000	37,000	49,900	55,000	55,000	46,000	60,000	88,000
Female	40,000	32,300	41,000	40,000	43,000	45,000	42,600	39,000	S
White	44,400	31,000	40,000	44,300	52,000	50,000	45,000	52,000	82,100
Black	42,000	27,000	40,000	45,000	43,000	47,900	45,000	S	S
Hispanic	45,000	27,000	36,000	52,000	41,000	S	S	S	S
Asian/Pacific Islander	40,000	31,000	39,300	40,000	42,000	40,000	40,000	S	S
Other	37,000	S	S	S	S	S	S	S	S
Physical and related sciences	55,000	35,000	51,000	60,000	68,000	58,000	60,000	66,000	90,700
Male	58,000	36,000	53,000	60,000	70,000	60,000	60,000	68,000	90,700
Female	43,000	35,000	45,000	56,000	58,000	55,000	52,200	28,000	S
White	56,000	35,000	52,000	60,600	70,000	58,000	60,000	66,000	90,700
Black	45,000	39,700	40,000	S	60,000	32,000	S	S	S
Hispanic	45,000	28,000	47,500	S	S	S	S	S	S
Asian/Pacific Islander	47,500	41,600	38,000	35,000	60,000	53,000	30,000	50,000	91,000
Other	40,000	40,000	S	S	S	S	S	S	S
Social and related sciences	44,000	32,000	43,000	45,000	46,000	52,000	52,200	51,000	50,000
Male	50,000	35,000	47,000	50,000	52,000	52,500	57,000	51,000	50,000
Female	40,000	31,000	42,000	42,000	42,500	48,000	42,000	51,000	35,000
White	45,000	32,000	45,000	45,000	46,400	52,000	53,300	53,000	50,000
Black	40,000	34,000	38,500	40,000	40,000	50,000	45,000	S	S
Hispanic	41,000	32,000	39,000	42,500	47,000	55,000	36,000	S	S
Asian/Pacific Islander	39,500	39,000	40,000	40,000	35,400	36,000	50,000	37,000	S
Other	40,000	25,000	S	35,000	S	S	S	S	S
Engineering	65,000	50,000	61,000	70,000	72,000	80,000	83,000	79,300	60,000
Male	65,000	50,000	62,000	70,000	72,800	80,000	83,500	79,300	62,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-31.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	55,000	48,000	58,000	66,000	65,000	50,000	55,000	S	S
White	66,000	50,000	60,500	72,000	74,400	82,000	85,000	79,300	60,000
Black	60,000	48,000	62,000	68,000	65,000	80,000	S	S	S
Hispanic	57,200	48,000	60,000	62,000	55,000	73,200	60,000	70,000	S
Asian/Pacific Islander	60,000	50,000	60,000	67,000	65,000	70,000	72,000	75,000	63,800
Other	50,000	49,000	S	S	S	S	S	S	S
Doctorate									
S&E degree fields	65,000	45,000	58,000	66,000	73,700	76,000	80,000	82,000	80,000
Male	70,000	50,000	60,000	70,000	75,000	80,000	80,000	84,000	80,000
Female	52,000	40,000	50,000	59,000	64,000	65,000	65,000	60,000	70,000
White	65,500	44,000	57,000	65,000	72,500	76,000	80,000	82,000	80,000
Black	58,000	43,000	53,000	58,000	70,000	71,000	73,500	83,000	96,000
Hispanic	60,000	44,000	51,000	60,000	70,000	68,000	84,300	65,000	S
Asian/Pacific Islander	65,000	50,000	60,000	70,000	80,000	80,000	80,000	82,000	85,000
Other	54,000	42,000	50,000	50,000	62,500	60,000	77,000	S	S
Sciences	62,500	40,000	54,000	63,000	71,000	75,000	75,100	80,000	80,000
Male	67,000	42,000	56,000	66,000	73,200	75,600	78,000	80,700	80,000
Female	51,000	38,000	50,000	58,000	64,000	64,500	65,000	60,000	70,000
White	63,500	40,000	55,000	63,000	70,000	75,000	75,000	80,000	80,000
Black	56,000	42,000	52,000	55,000	67,000	70,000	76,800	83,000	96,000
Hispanic	57,000	42,000	50,000	60,000	75,000	68,000	90,000	65,000	S
Asian/Pacific Islander	60,000	41,000	52,000	67,900	75,000	74,000	76,000	79,500	80,000
Other	52,000	40,000	50,000	50,000	62,500	60,000	77,000	S	S
Computer/math sciences	67,000	53,000	60,000	65,000	70,000	75,600	74,200	75,000	90,000
Male	68,000	56,000	60,000	65,000	70,000	75,600	74,200	75,000	92,000
Female	56,000	40,000	60,000	65,000	70,000	56,000	70,000	80,000	S
White	68,000	50,000	60,000	63,000	70,000	75,600	75,000	75,000	92,000
Black	64,500	52,000	77,000	47,500	63,000	85,000	S	S	S
Hispanic	67,800	50,000	76,800	55,000	86,000	64,000	S	90,000	S
Asian/Pacific Islander	62,000	55,000	60,000	67,900	71,000	69,000	52,000	49,400	S
Other	45,000	S	S	S	S	S	S	S	S
Life and related sciences	60,000	35,000	52,000	63,000	72,000	72,900	78,000	78,000	78,000
Male	65,000	35,000	55,000	65,000	75,000	75,000	80,000	79,500	78,000
Female	50,000	33,000	50,000	59,000	63,000	60,800	65,000	50,000	50,000
White	60,600	35,000	53,000	63,700	70,000	74,500	77,000	76,800	79,000
Black	55,000	40,400	54,000	53,000	63,000	65,000	87,000	84,000	S
Hispanic	59,000	42,000	48,800	50,000	95,000	60,000	100,000	120,000	S
Asian/Pacific Islander	52,000	30,000	50,100	67,000	79,500	72,000	80,000	71,400	37,000
Other	60,000	34,000	53,400	60,000	75,000	58,000	S	S	S
Physical and related sciences	70,000	47,000	60,000	72,000	80,000	80,000	80,000	84,000	80,500
Male	72,000	48,000	60,000	73,000	80,000	81,000	80,000	85,000	86,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-31.

**Median annual salaries of individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1997
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1–4	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
Female	58,000	43,000	55,000	63,400	70,000	74,000	63,000	50,000	70,000
White	72,000	45,000	60,000	72,000	80,000	80,000	80,000	85,000	80,000
Black	65,000	52,000	61,000	52,000	76,000	80,000	S	S	S
Hispanic	60,000	42,000	57,900	80,000	60,000	78,000	72,400	10,000	S
Asian/Pacific Islander	65,000	50,000	55,000	70,000	80,000	76,000	76,000	84,000	130,000
Other	78,000	42,000	50,000	S	S	90,000	S	S	S
Social and related sciences	58,500	40,000	51,000	60,000	65,000	70,000	70,000	75,400	78,000
Male	63,000	42,000	53,200	60,900	66,500	72,000	72,000	77,300	79,000
Female	50,000	40,000	49,000	56,000	61,000	65,000	64,000	65,700	60,000
White	60,000	40,000	51,700	60,000	65,800	70,000	70,000	79,000	78,000
Black	55,000	42,000	50,000	56,500	66,000	70,000	72,000	S	S
Hispanic	52,000	42,000	48,000	60,000	56,000	68,000	80,000	S	S
Asian/Pacific Islander	54,000	42,100	50,000	61,000	53,000	75,000	105,000	74,000	65,000
Other	49,000	40,000	42,000	48,000	62,500	49,000	S	S	S
Engineering	75,000	60,000	70,000	79,400	85,000	90,000	90,000	97,000	100,000
Male	76,000	61,000	70,000	79,400	85,000	90,000	90,000	97,000	100,000
Female	60,000	55,000	63,000	76,600	70,000	96,100	S	S	S
White	78,000	60,000	70,000	80,000	85,400	90,300	90,000	95,000	100,000
Black	68,000	54,000	63,000	75,000	95,000	90,000	S	S	S
Hispanic	65,000	56,000	60,000	60,000	70,000	68,000	S	S	S
Asian/Pacific Islander	72,000	60,000	70,000	79,400	81,800	90,000	90,800	100,000	110,000
Other	70,000	58,000	70,000	S	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1997.

Appendix table 3-32.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
		All degree levels^a							
S&E degree fields	44,000	30,000	42,000	49,000	50,000	50,300	55,000	55,000	50,200
Male	49,200	33,000	45,000	52,000	54,000	55,000	60,000	60,000	55,000
Female	33,000	25,000	35,000	38,000	37,800	37,600	37,000	37,500	37,000
White	45,000	29,200	42,800	50,000	50,000	52,000	55,400	56,000	52,000
Black	35,000	26,000	34,000	38,000	37,600	40,000	42,000	43,000	40,200
Hispanic	38,000	30,000	38,600	44,000	42,000	48,000	50,000	53,000	41,000
Asian/Pacific Islander	45,000	36,000	46,000	50,000	50,000	48,300	48,000	50,000	47,000
Other	40,000	28,500	41,000	40,500	50,000	46,600	50,000	53,000	100,000
Sciences	40,000	26,000	38,000	43,900	45,000	48,000	49,600	50,000	45,500
Male	45,000	29,000	42,000	49,400	50,000	50,000	55,000	56,000	50,000
Female	32,000	24,400	34,000	37,000	37,000	37,600	37,000	37,200	37,000
White	40,000	26,000	39,000	45,000	45,900	49,000	50,000	51,300	47,000
Black	33,000	24,300	31,000	35,300	36,000	40,000	40,700	42,000	40,000
Hispanic	35,000	27,000	35,000	40,000	40,000	45,000	40,300	47,000	39,000
Asian/Pacific Islander	40,000	31,000	42,000	49,000	43,200	40,000	42,200	41,200	34,000
Other	36,000	27,000	40,000	31,000	50,000	45,000	54,000	53,000	40,000
Computer/math sciences	48,000	35,000	45,000	52,000	57,000	58,000	58,000	55,000	45,000
Male	50,000	37,000	48,000	55,000	60,000	60,000	60,000	57,200	57,000
Female	40,000	32,400	41,300	46,300	46,000	43,000	40,000	35,000	33,000
White	48,500	35,000	45,700	53,000	57,000	60,000	60,000	55,000	45,000
Black	37,000	32,000	35,000	42,000	43,000	46,000	40,000	S	S
Hispanic	40,000	34,000	44,000	50,600	55,000	47,500	59,000	74,000	S
Asian/Pacific Islander	48,000	41,000	48,000	55,000	60,000	50,000	50,000	62,000	S
Other	40,000	35,000	42,300	24,000	S	50,000	54,000	S	S
Life and related science	37,000	25,000	33,000	41,000	43,000	45,000	45,000	47,000	41,000
Male	41,000	25,000	35,000	44,000	45,000	46,000	48,000	52,000	42,000
Female	32,000	25,000	31,000	35,000	36,000	37,500	36,000	34,400	40,000
White	37,800	25,000	33,000	42,000	43,000	45,000	45,000	49,500	41,000
Black	34,000	25,000	30,000	34,000	40,000	35,000	44,000	38,000	38,000
Hispanic	35,000	25,000	32,600	37,800	37,200	42,000	45,000	35,000	44,400
Asian/Pacific Islander	37,600	29,000	33,000	45,000	45,000	40,000	46,000	41,200	50,000
Other	40,000	25,000	42,000	28,000	50,900	52,000	50,000	S	S
Physical and related sciences	48,000	30,000	44,000	50,000	53,000	55,000	60,000	63,000	50,000
Male	50,000	30,400	45,000	51,000	56,400	55,500	62,000	65,000	56,800
Female	36,000	28,000	40,000	41,000	42,000	50,000	42,000	31,200	35,000
White	50,000	30,000	45,000	50,000	55,000	56,800	60,000	65,000	50,000
Black	40,000	27,000	40,000	45,500	42,000	45,000	49,900	60,000	12,000
Hispanic	37,500	26,000	37,300	40,000	50,000	43,500	54,000	38,000	45,000
Asian/Pacific Islander	41,500	33,400	43,000	49,500	50,000	45,000	45,000	41,600	50,000
Other	40,000	30,000	38,000	30,000	51,000	43,000	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-32.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Social and related science	35,500	24,500	35,000	39,000	42,000	45,000	44,500	49,800	44,000
Male	41,000	26,000	37,000	44,000	45,500	50,000	51,000	53,000	50,000
Female	30,000	23,000	32,000	35,000	36,000	36,000	35,800	40,000	39,000
White	36,000	24,400	35,000	40,000	44,000	46,000	45,000	50,000	46,000
Black	31,000	23,000	30,000	34,000	35,000	38,400	39,900	40,000	52,000
Hispanic	32,000	25,000	35,000	38,000	38,000	45,000	35,600	53,000	30,000
Asian/Pacific Islander	32,000	25,000	36,000	34,000	32,800	36,000	40,000	40,000	21,000
Other	34,000	25,000	33,000	35,500	43,000	44,000	60,000	53,000	S
Engineering	54,000	40,000	50,000	56,700	60,000	65,000	70,000	64,000	60,000
Male	55,000	40,000	50,000	57,000	61,000	65,000	70,000	64,800	60,000
Female	46,000	39,000	48,700	52,000	51,000	35,000	36,000	50,000	36,000
White	55,000	40,000	50,000	57,000	62,000	66,000	71,000	65,000	60,000
Black	47,600	40,000	49,000	52,000	56,000	47,000	51,000	67,000	S
Hispanic	48,000	40,000	47,000	51,500	53,000	60,000	60,000	70,000	50,000
Asian/Pacific Islander	50,000	40,000	50,000	56,000	56,000	60,000	55,000	57,000	51,000
Other	50,000	38,000	48,000	58,000	52,000	66,000	S	S	S
Bachelor's									
S&E degree fields	40,000	26,800	40,000	45,000	45,000	48,000	50,000	53,700	50,000
Male	45,000	30,000	43,000	50,000	50,000	51,000	57,000	58,000	54,000
Female	30,000	24,000	33,000	35,600	35,000	35,000	36,000	36,000	36,000
White	41,000	26,500	40,000	47,000	47,600	50,000	52,000	54,800	50,000
Black	32,500	24,000	31,000	36,000	35,000	39,000	40,000	43,000	40,200
Hispanic	36,000	28,000	37,300	40,000	40,000	45,000	50,000	55,000	39,000
Asian/Pacific Islander	38,000	30,000	40,000	45,000	41,000	40,000	40,000	50,000	41,600
Other	36,000	27,000	40,000	40,000	50,000	37,000	43,000	49,000	120,000
Sciences	36,000	25,000	35,000	40,000	42,000	44,000	45,000	49,000	43,000
Male	41,000	26,000	39,000	45,000	45,000	48,000	51,000	52,000	48,000
Female	30,000	23,000	32,000	34,200	34,900	35,000	36,000	35,500	36,000
White	37,000	24,700	36,000	42,000	43,000	45,000	46,800	50,000	44,000
Black	31,000	23,000	29,500	33,000	33,600	37,000	39,900	42,000	40,000
Hispanic	32,000	25,000	34,700	37,500	37,000	43,000	38,000	38,000	31,000
Asian/Pacific Islander	35,000	28,000	39,000	38,000	35,000	36,000	36,000	40,000	31,300
Other	34,700	25,200	36,000	30,000	50,000	36,300	48,000	S	S
Computer/math sciences	45,000	32,000	44,000	50,000	55,000	50,000	57,900	55,000	40,000
Male	48,000	33,000	45,000	53,000	60,000	52,000	60,000	57,200	53,500
Female	38,000	30,000	40,000	44,000	46,000	40,000	40,000	34,600	33,000
White	46,000	32,000	45,000	52,000	55,800	51,000	58,000	54,000	40,000
Black	36,000	30,000	34,000	42,000	48,000	42,000	40,000	S	S
Hispanic	37,500	31,500	38,000	47,800	50,000	43,000	59,000	S	S
Asian/Pacific Islander	42,000	35,000	43,700	50,000	60,000	50,000	35,000	S	S
Other	39,500	35,000	40,000	24,000	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-32.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Life and related sciences	34,900	23,700	30,000	36,000	40,000	40,000	40,000	44,000	40,000
Male	37,500	24,000	32,000	40,000	43,000	42,000	45,000	45,000	40,000
Female	30,000	23,000	27,000	31,000	35,000	34,000	36,000	33,000	40,000
White	35,000	23,000	30,200	37,000	40,000	40,000	40,000	45,000	40,000
Black	32,000	23,500	27,000	32,000	37,000	32,000	44,000	38,000	38,000
Hispanic	32,600	25,000	32,000	33,300	36,000	42,000	45,000	35,000	S
Asian/Pacific Islander	35,000	28,000	27,000	38,000	40,000	36,000	37,600	40,000	46,100
Other	36,000	23,000	S	28,000	S	S	S	S	S
Physical and related sciences	42,000	25,500	40,000	45,000	47,900	49,600	52,000	53,700	50,000
Male	45,000	26,000	41,000	47,000	49,300	49,500	56,000	63,100	50,000
Female	34,000	24,400	36,500	37,500	40,000	50,000	33,000	32,000	28,000
White	44,000	26,000	40,000	46,000	48,600	50,000	55,000	60,000	50,000
Black	37,000	25,000	38,000	35,000	41,600	46,000	49,900	60,000	S
Hispanic	37,000	26,000	35,000	37,500	49,300	43,500	S	38,000	45,000
Asian/Pacific Islander	35,500	27,500	37,500	36,000	36,000	32,000	35,800	41,000	55,100
Other	38,000	30,000	S	S	43,000	S	S	S	S
Social and related sciences	33,000	23,500	32,000	37,000	40,000	42,000	42,900	48,000	44,000
Male	39,000	25,000	35,000	41,000	43,000	48,000	49,000	50,000	50,000
Female	28,000	22,000	30,000	32,000	33,000	34,000	35,600	38,700	39,700
White	34,700	23,500	32,500	38,000	40,600	44,000	43,900	49,500	45,000
Black	29,500	22,000	28,000	31,000	31,900	36,000	35,000	40,000	52,000
Hispanic	30,000	24,700	34,700	37,000	35,500	45,000	35,600	53,000	30,000
Asian/Pacific Islander	30,000	25,000	35,000	30,000	30,000	36,000	36,000	40,000	21,000
Other	30,000	22,500	33,000	35,500	40,000	36,300	48,000	S	S
Engineering	50,000	36,400	47,500	54,000	60,000	61,500	65,000	63,300	60,000
Male	52,000	36,300	47,500	55,000	60,000	62,000	65,500	64,000	60,000
Female	43,800	36,900	47,000	50,000	51,000	32,000	34,000	50,000	36,000
White	52,000	36,600	48,000	55,000	60,000	64,000	68,300	65,000	60,000
Black	45,200	38,000	47,700	50,000	50,000	46,000	60,000	67,000	S
Hispanic	46,000	36,000	45,000	50,000	50,000	60,000	60,000	72,000	42,000
Asian/Pacific Islander	44,000	35,000	45,000	48,000	50,000	48,000	48,000	55,000	50,000
Other	50,000	36,000	48,800	58,000	53,000	S	S	S	S
Master's									
S&E degree fields	50,000	40,000	49,000	55,000	54,000	58,000	58,000	60,000	56,000
Male	55,000	43,000	52,000	60,000	60,000	61,000	62,400	60,700	57,800
Female	40,000	33,000	40,000	42,000	42,500	49,000	36,000	42,000	37,000
White	50,000	39,800	49,000	55,000	55,000	60,000	58,000	60,000	57,500
Black	42,000	38,000	40,000	45,000	46,000	47,500	50,000	S	S
Hispanic	45,700	37,600	45,000	52,000	50,000	55,000	50,000	45,000	S
Asian/Pacific Islander	50,000	43,000	50,000	58,000	58,000	52,000	55,000	55,000	50,000
Other	42,500	35,000	42,300	42,500	67,000	52,000	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-32.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Sciences	45,000	35,000	43,600	47,700	49,000	51,000	50,000	55,000	50,000
Male	50,000	38,000	48,000	55,000	53,900	55,000	55,000	62,000	52,000
Female	40,000	32,000	40,000	41,000	42,000	48,700	36,000	41,600	37,000
White	46,000	33,400	43,400	47,800	49,000	53,000	50,000	60,000	52,000
Black	40,000	35,000	38,000	42,000	45,000	47,200	50,000	S	S
Hispanic	40,000	33,000	37,300	50,000	42,000	54,700	20,000	S	S
Asian/Pacific Islander	45,500	42,000	48,000	50,000	53,000	40,000	50,000	38,600	25,000
Other	42,300	30,000	48,000	38,700	67,000	S	S	S	S
Computer/math sciences	55,000	44,000	55,000	62,000	59,000	68,000	60,000	54,000	74,000
Male	58,000	45,000	58,000	63,000	60,000	68,700	64,000	54,000	74,000
Female	46,500	40,000	48,000	55,000	44,000	64,500	42,000	S	S
White	56,000	43,000	56,000	62,400	59,000	68,000	60,000	54,000	74,000
Black	48,000	40,000	51,600	55,000	42,000	53,000	S	S	S
Hispanic	59,000	40,000	60,000	60,000	60,000	S	S	S	S
Asian/Pacific Islander	50,000	45,000	51,000	60,000	60,000	56,000	63,000	S	S
Other	65,100	S	S	S	S	S	S	S	S
Life and related sciences	41,000	30,000	36,000	46,500	45,000	48,000	40,700	53,800	23,000
Male	45,000	30,000	39,000	49,000	50,000	47,800	46,000	65,000	18,000
Female	37,000	30,500	35,000	41,800	36,000	48,700	30,600	42,000	S
White	42,500	30,000	38,000	47,000	46,000	48,000	41,000	53,800	18,000
Black	40,000	30,000	35,000	43,000	40,000	47,500	40,700	S	S
Hispanic	35,000	30,900	35,000	45,000	28,200	S	S	S	S
Asian/Pacific Islander	37,000	30,000	31,000	38,000	40,000	38,800	39,000	42,000	S
Other	42,000	30,000	S	S	S	S	S	S	S
Physical and related sciences	50,000	35,000	50,000	59,000	58,000	52,000	60,000	63,000	58,000
Male	52,000	35,500	52,000	59,000	59,500	55,000	60,000	70,000	60,000
Female	42,000	34,400	45,000	50,000	50,000	46,000	50,000	24,000	S
White	52,000	35,000	52,000	59,000	59,500	57,000	60,000	65,000	62,000
Black	45,000	30,000	52,000	64,400	45,000	S	S	S	S
Hispanic	39,500	28,000	37,300	52,000	S	S	S	S	S
Asian/Pacific Islander	40,000	37,000	30,000	43,000	60,000	40,000	55,000	S	S
Other	40,000	40,000	S	S	S	S	S	S	S
Social and related sciences	41,500	30,000	39,800	41,000	45,000	50,000	43,000	60,000	35,000
Male	46,000	32,000	40,000	47,000	49,500	50,000	54,900	60,700	35,000
Female	38,000	28,200	39,000	39,300	42,000	45,000	34,000	52,000	35,000
White	42,000	29,800	40,000	41,000	45,500	50,000	43,000	60,000	35,000
Black	40,000	33,000	36,900	40,000	47,000	43,500	60,000	S	S
Hispanic	38,000	32,400	34,000	45,000	43,000	54,700	19,500	S	S
Asian/Pacific Islander	36,000	33,600	35,000	35,000	39,000	34,000	36,000	S	S
Other	41,000	34,000	S	S	S	S	S	S	S
Engineering	60,000	47,000	57,000	65,000	68,000	70,000	77,500	60,300	65,000
Male	60,000	47,000	57,000	65,000	69,900	70,100	77,900	60,300	65,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-32.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	50,000	45,000	55,000	60,000	52,400	50,000	50,000	S	S
White	60,000	48,000	57,500	65,000	70,000	72,000	80,000	60,300	65,000
Black	56,800	48,000	56,800	62,000	65,900	65,000	S	S	S
Hispanic	53,000	46,000	53,700	60,000	69,900	62,100	65,000	45,000	S
Asian/Pacific Islander	55,000	44,000	54,500	62,000	60,000	65,900	66,500	65,000	60,000
Other	48,000	43,000	S	S	S	S	S	S	S
Doctorate									
S&E degree fields	60,000	42,000	55,000	63,000	69,300	72,000	75,700	77,200	75,000
Male	64,500	45,000	56,500	65,000	70,000	73,100	78,000	79,000	78,000
Female	50,000	37,000	50,000	56,000	60,000	60,000	63,200	58,000	70,000
White	61,700	42,000	55,000	62,000	68,600	72,000	76,400	78,000	75,000
Black	54,000	41,000	50,000	60,000	65,000	67,800	65,000	79,300	60,000
Hispanic	53,000	40,000	46,000	61,000	65,200	60,000	70,300	150,000	118,100
Asian/Pacific Islander	60,000	41,600	57,000	68,000	72,800	75,000	75,000	71,000	70,000
Other	50,000	36,000	43,800	58,000	52,000	60,000	62,500	79,600	S
Sciences	60,000	39,500	51,300	60,000	67,000	70,000	73,000	75,000	75,000
Male	62,000	40,000	53,300	63,000	69,500	70,600	75,000	76,000	75,000
Female	50,000	36,500	49,000	56,000	60,000	60,000	63,000	56,000	70,000
White	60,000	40,000	52,000	60,000	67,000	70,000	74,000	75,500	75,000
Black	52,000	40,000	47,200	56,200	62,000	67,800	65,000	79,300	60,000
Hispanic	51,000	39,900	44,500	61,700	60,000	60,000	70,300	150,000	118,100
Asian/Pacific Islander	54,900	36,000	52,000	64,100	70,000	69,000	72,500	62,800	67,900
Other	50,000	35,000	42,000	58,000	50,000	60,000	62,500	79,600	S
Computer/math sciences	60,000	48,000	58,000	60,000	65,000	71,700	67,000	70,000	55,000
Male	61,000	51,000	57,000	60,000	65,000	71,700	67,000	70,000	55,000
Female	50,500	40,000	60,000	61,800	54,000	55,000	72,000	45,000	S
White	62,000	48,000	59,000	60,000	65,000	71,700	67,000	70,000	61,000
Black	57,000	39,000	49,000	50,000	60,000	71,400	57,000	S	S
Hispanic	49,900	40,000	49,200	85,000	48,000	49,900	S	S	S
Asian/Pacific Islander	55,000	50,000	57,000	60,400	50,000	65,000	75,000	74,600	S
Other	46,400	S	S	S	S	S	S	S	S
Life and related sciences	57,000	33,500	50,000	60,000	69,500	66,100	75,000	75,000	78,600
Male	60,000	34,000	51,000	60,000	70,000	69,000	77,500	77,200	80,000
Female	48,800	32,300	49,000	58,000	60,000	60,000	62,300	42,900	55,000
White	58,000	35,000	50,000	60,000	68,900	67,000	75,000	75,100	76,000
Black	51,000	41,300	43,000	58,000	67,000	65,000	67,800	66,100	S
Hispanic	52,500	30,000	33,000	61,000	93,600	42,000	85,000	150,000	139,000
Asian/Pacific Islander	51,000	30,000	50,000	67,000	75,000	66,000	72,000	62,700	70,000
Other	56,000	30,000	49,000	79,000	56,000	65,000	S	S	S
Physical and related sciences	66,000	40,400	57,500	68,000	72,200	77,300	79,000	80,000	78,000
Male	68,500	41,000	57,500	69,000	72,500	78,000	80,000	80,000	78,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-32.

Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1995
(Dollars)

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1–4	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
Female	55,100	39,400	58,000	63,000	70,000	71,000	61,500	63,000	70,000
White	69,000	42,000	58,000	68,000	73,000	79,000	80,000	80,000	78,000
Black	50,000	40,000	52,600	48,000	66,000	90,000	S	S	S
Hispanic	60,000	40,000	60,000	68,000	62,000	66,000	63,000	S	S
Asian/Pacific Islander	60,000	40,000	53,000	69,000	72,000	72,000	73,500	79,000	85,100
Other	73,000	30,000	S	83,000	96,000	S	S	S	S
Social and related sciences	56,000	40,000	50,000	59,800	60,000	63,500	65,100	70,000	70,000
Male	60,000	42,000	51,000	60,700	62,200	65,000	66,000	74,000	70,000
Female	48,500	38,000	46,000	52,900	56,400	60,000	64,000	58,000	75,000
White	56,500	40,000	50,000	60,000	60,700	63,100	65,000	73,000	71,300
Black	52,000	40,000	50,000	60,000	59,500	67,800	66,000	79,300	S
Hispanic	48,100	40,000	47,000	51,000	52,000	67,400	65,000	S	S
Asian/Pacific Islander	51,900	40,000	52,000	52,500	70,000	71,000	80,500	S	S
Other	46,000	36,000	42,000	56,000	42,000	48,000	60,000	S	S
Engineering	70,000	55,000	65,000	72,000	80,000	85,000	90,000	93,000	80,000
Male	70,000	55,000	65,000	72,000	80,000	85,000	90,000	93,000	80,000
Female	55,000	48,000	57,000	64,900	70,000	85,400	S	S	S
White	72,000	56,000	66,000	72,000	80,000	87,000	90,000	94,000	80,000
Black	65,000	60,000	59,000	95,000	80,000	65,900	S	S	S
Hispanic	57,000	55,000	53,800	55,000	82,000	35,000	S	S	S
Asian/Pacific Islander	65,000	52,000	65,000	72,000	78,000	84,000	88,000	81,000	96,000
Other	60,000	45,000	S	S	S	60,000	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1995.

Appendix table 3-33.

Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
		All degree levels^a							
S&E degree fields	42,000	30,000	41,000	46,000	48,000	50,000	54,000	52,000	52,000
Male	47,100	34,000	43,800	50,000	50,500	54,000	60,000	56,500	57,200
Female	33,000	26,000	35,000	36,000	37,400	36,000	36,000	33,200	30,700
White	43,200	30,000	41,400	48,000	48,400	51,000	55,000	52,600	55,000
Black	34,000	26,800	34,000	36,000	37,000	40,000	37,000	41,000	40,000
Hispanic	38,000	29,100	38,000	42,000	42,000	49,000	53,700	41,600	42,000
Asian/Pacific Islander	42,000	35,000	43,900	48,000	46,800	48,000	48,000	44,500	42,000
Other	36,900	28,500	35,500	35,000	46,800	42,200	50,000	52,000	130,000
Sciences	39,000	27,000	37,500	41,600	44,000	45,600	49,500	48,000	47,400
Male	43,000	30,000	40,000	45,800	47,600	50,000	53,700	52,000	52,000
Female	32,000	25,000	34,000	35,000	36,700	36,000	36,000	32,500	30,600
White	40,000	27,000	38,000	42,000	45,000	46,800	50,000	50,000	48,000
Black	32,500	25,000	32,000	33,800	36,000	40,000	37,000	39,900	38,000
Hispanic	35,000	26,000	34,800	39,800	39,000	45,000	49,100	34,500	39,000
Asian/Pacific Islander	37,400	32,000	40,000	43,100	40,000	40,400	42,000	35,400	36,000
Other	35,000	28,200	30,000	30,000	45,000	42,000	50,000	50,000	70,000
Computer/math sciences	45,000	35,000	43,000	52,000	55,000	52,000	58,000	52,000	48,000
Male	48,000	36,000	45,000	54,000	58,100	56,000	60,000	56,000	62,400
Female	38,000	32,000	40,000	45,800	42,000	39,900	45,000	38,000	28,600
White	45,500	35,000	43,000	53,000	56,000	53,000	58,200	51,700	48,000
Black	36,000	30,000	40,000	38,400	41,600	45,000	56,900	52,400	42,000
Hispanic	40,000	34,000	40,000	45,800	60,000	56,700	60,000	37,800	S
Asian/Pacific Islander	43,500	36,000	45,800	55,000	50,000	46,000	45,000	62,000	S
Other	36,300	37,000	25,000	60,000	40,000	40,200	62,400	S	S
Life and related science	36,400	25,400	35,000	38,500	41,800	42,000	45,000	43,500	41,600
Male	40,000	26,000	37,000	41,600	44,000	45,000	49,700	45,000	50,000
Female	31,400	24,900	32,000	34,600	39,900	34,900	37,000	32,000	33,000
White	37,000	25,800	35,000	39,000	42,000	42,000	45,000	43,600	41,700
Black	33,000	23,000	32,300	36,000	34,000	35,400	36,400	45,000	32,500
Hispanic	35,000	23,000	33,600	39,000	41,500	40,000	54,000	34,800	42,000
Asian/Pacific Islander	36,000	25,500	35,000	40,000	41,600	43,700	41,400	42,000	39,900
Other	35,500	24,000	28,800	28,600	46,800	42,000	75,000	S	S
Physical and related sciences	47,000	31,200	40,000	50,000	50,000	53,200	60,000	57,000	55,000
Male	50,000	32,000	40,500	51,000	52,000	56,000	63,000	62,000	60,000
Female	36,800	29,000	39,000	41,600	40,000	45,000	45,000	32,000	27,700
White	49,000	31,500	41,000	50,400	52,000	54,000	62,000	58,000	55,000
Black	37,400	30,000	34,500	40,000	35,000	52,000	56,700	39,000	S
Hispanic	40,000	27,500	38,400	45,000	33,000	52,200	64,000	60,000	43,700
Asian/Pacific Islander	40,000	31,000	37,000	40,000	44,000	46,000	46,600	44,500	43,000
Other	43,200	28,500	52,000	27,600	46,700	48,900	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-33.

Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree						
		1–4	5–9	10–14	15–19	20–24	25–29	30–34
Social and related science	35,000	24,000	34,000	37,500	41,600	42,000	43,000	45,800
Male	40,000	26,000	36,300	42,000	45,000	47,800	50,000	50,000
Female	30,000	23,000	32,000	33,300	35,000	35,000	33,800	32,000
White	36,000	24,000	35,000	38,400	42,400	43,000	44,000	47,400
Black	31,200	24,000	30,000	32,000	35,200	37,000	33,000	36,000
Hispanic	32,300	25,000	32,500	38,000	36,000	43,200	36,300	30,000
Asian/Pacific Islander	32,000	26,400	33,000	34,000	33,000	36,000	39,000	34,000
Other	31,500	24,000	29,000	27,000	39,600	42,200	60,000	S
Engineering	51,900	39,000	48,000	54,900	60,000	62,500	65,500	60,000
Male	52,000	39,000	48,000	55,000	60,000	63,000	65,700	60,000
Female	43,700	38,700	45,000	53,600	50,000	32,700	45,400	39,000
White	52,000	39,100	48,000	55,000	60,000	64,400	67,600	62,000
Black	44,200	36,400	44,000	52,800	52,800	49,000	50,000	62,400
Hispanic	45,000	37,400	44,600	50,000	62,800	52,000	60,000	54,100
Asian/Pacific Islander	48,000	40,000	47,800	53,800	57,000	54,200	55,200	51,800
Other	48,000	34,000	45,000	41,600	60,000	71,000	S	S
Bachelor's								
S&E degree fields	40,000	27,600	39,000	44,000	44,400	46,800	51,000	50,000
Male	44,000	30,000	41,600	48,000	48,000	50,000	56,000	53,000
Female	30,200	24,000	33,300	33,600	35,000	34,000	34,000	32,000
White	40,000	27,600	39,600	45,000	45,600	47,900	52,000	52,000
Black	32,000	25,000	32,500	34,000	35,000	40,000	35,500	39,000
Hispanic	36,000	27,200	36,000	40,000	40,000	47,500	52,000	35,000
Asian/Pacific Islander	36,400	31,200	39,000	40,000	38,000	41,000	43,100	40,000
Other	35,000	25,000	30,000	31,000	46,800	39,000	50,000	52,000
Sciences	35,800	25,000	35,000	39,000	40,900	41,600	45,000	45,000
Male	40,000	27,000	37,900	42,500	44,600	45,600	52,000	50,000
Female	30,000	23,000	31,500	32,300	34,500	34,000	33,800	31,600
White	36,000	25,000	36,000	40,000	42,000	42,000	46,000	47,600
Black	31,000	23,700	31,000	31,700	34,500	37,000	35,500	37,400
Hispanic	32,000	25,000	32,800	37,300	36,000	43,200	45,800	31,200
Asian/Pacific Islander	33,400	28,000	35,400	35,000	35,000	36,000	39,000	33,200
Other	31,500	25,000	28,700	25,000	46,700	38,700	50,000	S
Computer/math sciences	42,000	32,500	41,600	50,000	54,000	49,000	56,400	50,000
Male	45,000	33,300	42,800	52,000	57,600	52,000	60,000	52,400
Female	36,200	30,000	38,400	44,200	42,100	35,000	45,000	38,000
White	42,600	33,000	42,000	51,100	55,000	50,000	56,000	50,000
Black	34,300	27,000	38,400	38,400	41,600	45,000	57,500	62,000
Hispanic	36,800	32,000	38,500	40,000	60,000	52,800	S	S
Asian/Pacific Islander	37,800	32,400	42,000	50,000	41,800	43,500	50,000	S
Other	35,400	37,000	21,600	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-33.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Life and related sciences	34,100	23,400	32,900	35,400	40,000	36,900	42,000	40,000	38,000
Male	36,400	24,000	35,000	37,400	40,000	40,000	44,700	42,000	42,000
Female	30,000	22,700	30,000	32,200	36,000	32,000	34,000	31,000	33,300
White	34,800	23,500	33,000	35,400	40,000	37,200	43,000	40,000	39,900
Black	31,900	22,100	31,500	35,000	32,600	32,800	36,400	35,000	32,500
Hispanic	32,400	20,800	31,000	37,400	39,700	39,200	54,000	S	42,000
Asian/Pacific Islander	33,000	24,200	33,300	34,200	39,600	39,500	37,100	42,000	35,000
Other	33,400	24,000	25,000	28,600	S	S	S	S	S
Physical and related sciences	41,600	28,000	36,000	43,200	45,000	49,700	52,800	51,100	49,000
Male	43,200	28,200	36,800	45,000	46,700	51,000	59,400	55,200	53,000
Female	34,000	26,000	35,000	39,000	40,000	46,000	45,000	32,000	27,700
White	42,300	28,000	36,800	45,300	46,700	51,000	58,200	52,000	50,000
Black	35,000	27,000	34,000	39,000	35,000	52,000	45,000	35,000	S
Hispanic	35,400	25,000	36,000	41,600	30,000	52,200	64,000	60,000	S
Asian/Pacific Islander	33,000	25,000	30,800	30,000	33,400	32,600	40,000	40,000	43,000
Other	41,000	S	44,700	S	S	S	S	S	S
Social and related sciences	32,600	23,000	31,200	36,000	39,200	40,000	40,700	45,000	44,000
Male	38,000	25,000	34,000	40,000	42,000	45,000	49,500	50,000	49,900
Female	28,100	21,900	30,000	31,200	32,000	33,400	31,300	31,600	30,000
White	33,600	23,000	32,000	37,000	40,000	40,000	42,000	47,900	45,000
Black	30,000	23,000	28,500	30,000	34,000	36,000	31,200	36,000	30,000
Hispanic	30,500	23,400	32,000	36,400	35,000	43,200	36,300	31,200	35,000
Asian/Pacific Islander	30,800	24,000	30,000	33,000	31,200	36,000	39,000	30,000	35,900
Other	28,200	24,000	28,700	24,000	39,600	38,700	S	S	S
Engineering	50,000	36,000	45,000	52,500	56,000	60,000	62,000	60,000	60,000
Male	50,000	36,000	45,000	52,800	56,000	60,000	62,300	60,000	60,000
Female	42,000	37,000	44,400	51,000	48,400	30,600	42,900	39,000	68,600
White	50,000	36,100	45,600	53,000	57,000	61,500	65,000	60,000	60,000
Black	42,000	35,000	42,000	50,400	45,600	48,000	50,000	62,400	S
Hispanic	43,000	36,000	42,300	49,000	58,000	48,200	60,000	54,100	45,000
Asian/Pacific Islander	42,200	35,000	42,000	48,000	48,700	49,400	50,000	49,400	50,900
Other	48,000	34,000	S	41,600	60,000	S	S	S	S
Master's									
S&E degree fields	48,600	40,000	47,500	50,700	52,000	56,400	60,000	60,000	57,600
Male	52,200	43,000	51,000	56,000	57,500	60,000	62,400	62,100	60,000
Female	39,000	34,000	40,000	39,000	41,600	40,000	45,400	37,400	42,000
White	49,800	40,000	47,900	50,300	52,500	57,500	60,000	60,000	60,000
Black	42,000	36,000	42,600	43,000	44,500	42,000	55,000	65,000	52,000
Hispanic	44,200	40,000	43,500	50,000	49,900	50,000	49,000	45,000	S
Asian/Pacific Islander	48,000	40,000	49,500	55,900	55,400	57,700	56,400	52,000	34,800
Other	42,000	40,000	36,000	56,000	32,300	42,000	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-33.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Sciences	44,200	36,000	42,000	45,000	48,000	50,000	50,000	51,200	53,000
Male	49,000	40,000	47,000	52,600	50,300	55,000	54,000	60,000	55,300
Female	38,000	32,500	39,000	38,000	41,500	40,000	45,400	37,400	40,000
White	45,000	36,000	42,000	45,000	48,000	51,000	51,000	52,000	55,000
Black	40,000	34,000	37,000	41,100	43,000	41,000	55,000	S	52,000
Hispanic	39,000	33,000	38,000	42,000	43,000	41,500	35,600	S	S
Asian/Pacific Islander	42,000	36,000	45,200	52,000	46,000	42,000	45,800	36,000	34,800
Other	40,800	39,000	36,300	56,000	32,300	42,000	S	S	S
Computer/math sciences	52,000	43,800	52,000	58,000	57,500	60,000	62,400	62,400	53,000
Male	55,200	46,000	55,000	60,000	60,000	63,000	70,000	72,000	57,200
Female	43,000	38,900	50,000	51,000	42,000	49,400	31,200	42,000	S
White	53,000	44,000	53,000	58,200	60,000	62,000	70,000	62,400	53,000
Black	46,000	42,300	50,000	39,300	47,000	38,000	S	S	S
Hispanic	52,000	46,000	52,000	54,500	67,500	72,000	S	S	S
Asian/Pacific Islander	49,000	40,600	50,400	58,000	55,400	52,000	41,000	S	S
Other	58,000	S	S	S	S	S	S	S	S
Life and related sciences	40,000	30,000	37,000	42,000	44,000	43,000	40,000	57,000	52,000
Male	42,400	29,500	39,700	45,000	46,000	44,900	42,000	67,300	52,000
Female	35,200	30,000	35,400	36,400	40,500	34,300	37,000	33,000	S
White	40,000	30,000	40,000	43,500	44,900	43,000	40,000	52,300	36,600
Black	36,000	26,000	35,400	42,000	36,000	44,000	S	S	S
Hispanic	37,000	25,600	36,000	34,000	60,000	S	36,000	S	S
Asian/Pacific Islander	35,600	27,000	29,000	41,600	45,000	36,000	47,000	36,000	S
Other	41,000	S	S	S	S	S	S	S	S
Physical and related sciences	50,000	36,000	48,000	58,000	52,000	60,000	55,000	54,000	73,400
Male	52,500	39,500	47,100	60,000	55,000	64,500	60,000	62,400	76,700
Female	40,900	34,700	52,000	50,000	40,000	41,100	48,000	30,000	S
White	51,000	38,000	50,000	60,000	55,000	60,000	55,000	60,000	73,400
Black	42,000	40,000	48,000	55,000	34,200	S	S	S	S
Hispanic	43,500	33,000	43,500	S	S	S	S	S	S
Asian/Pacific Islander	36,000	30,000	33,300	40,000	42,000	52,000	48,000	S	S
Other	35,000	S	S	S	S	S	S	S	S
Social and related sciences	40,300	31,900	38,100	39,300	46,000	48,000	50,000	45,800	49,000
Male	45,500	35,000	42,000	44,000	48,000	50,000	51,000	45,000	49,000
Female	37,000	30,000	37,000	37,000	41,000	39,900	46,000	52,000	37,300
White	41,000	32,000	39,000	39,000	46,800	49,000	50,000	46,000	49,000
Black	40,000	31,000	34,600	41,100	43,600	42,000	S	S	S
Hispanic	36,000	28,000	34,500	42,000	40,000	35,000	S	S	S
Asian/Pacific Islander	34,000	29,000	33,800	34,000	40,000	38,600	36,000	32,000	S
Other	40,800	42,000	S	56,000	31,800	S	S	S	S
Engineering	57,800	45,000	55,000	60,000	70,000	68,000	72,000	64,000	64,500
Male	59,000	45,000	56,000	60,000	70,000	68,000	72,300	65,000	64,600

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-33.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 or more
Female	48,000	43,000	51,000	55,900	52,000	50,000	46,700	52,000	S
White	59,500	45,600	56,000	60,000	72,000	70,000	74,000	68,200	64,500
Black	55,000	46,500	56,000	67,300	62,000	S	S	S	S
Hispanic	51,000	45,000	52,200	55,000	67,000	70,000	63,000	61,000	S
Asian/Pacific Islander	52,200	42,000	53,800	57,600	62,000	61,800	68,600	60,000	S
Other	49,000	45,000	S	S	S	S	S	S	S
Doctorate									
S&E degree fields	59,100	42,000	52,000	60,000	65,000	70,000	72,000	77,000	80,000
Male	61,000	44,000	53,000	62,400	67,000	70,200	73,000	78,000	80,000
Female	47,500	39,300	47,000	52,000	57,000	60,000	60,000	55,000	63,000
White	60,000	42,600	52,000	60,000	65,000	70,000	73,000	77,000	80,000
Black	50,000	44,000	47,000	51,000	60,000	60,000	52,000	135,000	66,200
Hispanic	52,000	37,000	45,000	60,000	65,000	65,000	72,100	120,000	93,600
Asian/Pacific Islander	56,000	41,000	54,000	65,000	70,000	70,200	70,000	67,000	80,000
Other	52,000	38,000	50,000	53,100	55,000	60,000	61,000	S	S
Sciences	56,000	40,000	49,600	58,200	63,200	67,000	70,000	75,000	78,000
Male	60,000	40,000	50,000	60,000	65,000	68,000	70,800	76,500	80,000
Female	47,000	38,000	46,600	52,000	56,000	60,000	60,000	55,000	63,000
White	57,400	40,000	50,000	58,000	63,500	67,000	70,000	75,000	77,200
Black	49,000	42,000	45,000	50,000	60,000	60,000	52,000	135,000	66,200
Hispanic	51,000	36,000	44,000	60,000	64,000	70,000	73,400	120,000	95,000
Asian/Pacific Islander	51,600	36,000	49,900	60,000	66,000	66,000	65,000	63,000	80,000
Other	53,100	40,200	49,000	51,000	50,000	60,000	61,000	S	S
Computer/math sciences	59,000	47,000	53,000	58,000	63,000	66,000	64,000	65,000	75,000
Male	60,000	49,400	54,000	57,200	63,000	66,700	64,000	65,000	75,000
Female	52,000	41,600	52,000	60,000	70,000	64,000	59,500	S	S
White	60,000	44,800	51,300	57,300	62,500	67,900	64,000	65,000	75,000
Black	53,000	52,000	63,000	47,800	60,000	53,000	S	S	S
Hispanic	55,000	54,200	48,000	63,300	61,000	S	69,700	S	S
Asian/Pacific Islander	56,000	51,000	55,800	62,000	70,000	61,900	57,000	64,500	S
Other	68,000	S	S	S	S	S	S	S	S
Life and related sciences	54,000	35,000	48,000	57,400	64,800	65,000	71,000	79,400	80,000
Male	58,000	36,000	48,000	60,000	65,800	67,000	72,300	83,000	86,000
Female	45,000	34,000	47,000	52,700	53,000	60,000	63,000	40,000	64,000
White	55,000	36,500	48,600	57,000	64,900	66,000	73,300	79,900	80,000
Black	49,000	46,000	40,900	52,000	65,000	60,000	67,500	S	S
Hispanic	46,800	26,400	39,000	60,000	80,000	65,000	98,000	120,000	95,000
Asian/Pacific Islander	49,400	28,000	48,000	56,800	62,500	62,000	63,200	60,000	80,000
Other	55,000	35,400	60,000	54,000	55,000	S	S	S	S
Physical and related sciences	63,000	41,500	55,400	66,300	69,300	72,500	73,400	80,000	77,200
Male	65,000	41,600	56,400	67,000	69,800	73,000	74,000	80,000	78,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-33.

**Median annual salaries of U.S. individuals with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and years since highest degree: 1993
(Dollars)**

Field of degree, sex, and race/ethnicity	Employed S&Es, total	Years since highest degree							
		1–4	5–9	10–14	15–19	20–24	25–29	30–34	35 or more
Female	52,000	40,000	51,500	65,000	62,000	65,000	65,000	63,300	65,000
White	65,000	44,000	56,000	67,000	69,500	73,000	75,000	78,700	75,700
Black	50,900	46,000	45,000	58,000	65,000	84,000	S	S	S
Hispanic	60,000	40,800	61,500	51,000	69,500	70,000	76,700	S	S
Asian/Pacific Islander	55,000	33,200	53,000	67,500	68,500	70,000	70,000	90,000	80,000
Other	60,000	36,100	73,000	65,000	75,000	60,000	S	S	S
Social and related sciences	52,000	41,600	46,000	52,800	59,900	61,000	61,900	67,000	79,200
Male	55,000	41,700	47,000	55,000	60,000	62,000	63,700	68,000	85,000
Female	46,500	41,300	45,000	50,000	55,500	54,800	55,600	60,000	56,600
White	52,000	42,000	45,700	52,800	60,000	60,900	62,000	67,500	77,900
Black	48,000	39,000	50,000	49,500	55,000	60,000	52,000	S	S
Hispanic	48,500	38,000	45,000	56,000	53,400	73,000	57,000	S	S
Asian/Pacific Islander	48,000	40,000	46,000	54,000	59,100	63,000	66,500	S	S
Other	46,300	41,700	34,300	53,100	46,300	59,500	S	S	S
Engineering	68,000	52,000	63,000	71,000	75,000	81,200	86,000	87,000	84,100
Male	69,000	52,000	63,200	72,000	75,000	81,200	86,000	87,000	84,100
Female	56,600	50,000	60,000	65,000	85,300	S	S	S	S
White	70,000	54,200	64,000	70,900	76,000	84,000	86,700	87,200	86,000
Black	62,500	55,200	64,000	67,500	70,000	51,000	S	S	S
Hispanic	58,000	41,600	58,000	72,000	65,000	16,600	S	S	S
Asian/Pacific Islander	63,000	50,000	62,000	72,000	75,000	77,000	80,000	S	65,000
Other	46,000	25,000	S	S	75,000	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability.

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993

Appendix table 3-34.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
		All degree levels ^a									
S&E occupations	3,596,800	85,400	420,000	461,300	594,700	581,900	494,700	428,300	278,300	152,000	100,200
Male	2,745,900	50,300	287,000	339,700	444,300	439,700	385,800	342,500	232,400	133,700	90,700
Female	850,900	35,100	133,000	121,600	150,400	142,300	108,900	85,800	45,900	18,300	9,500
White	2,940,900	63,900	321,100	353,500	475,100	476,800	419,300	370,400	239,700	131,600	89,500
Black	124,900	4,000	17,700	17,900	21,900	22,700	16,100	11,600	7,200	4,100	1,800
Hispanic	123,100	4,800	20,500	20,300	24,500	21,300	12,900	8,000	5,200	2,900	2,700
Asian/Pacific Islander	396,600	12,400	58,700	67,500	71,600	59,400	45,100	37,500	25,500	12,900	5,900
Other	11,300	S	1,900	2,200	1,600	1,800	1,300	800	700	500	200
Scientists	2,200,700	58,700	263,600	283,300	357,000	349,100	326,200	263,200	171,500	78,400	49,700
Male	1,482,800	30,800	160,900	187,800	234,900	230,400	226,300	181,800	127,600	61,800	40,600
Female	717,900	27,900	102,800	95,500	122,100	118,700	99,900	81,500	43,900	16,600	9,100
White	1,797,800	43,000	200,700	215,300	280,800	284,100	278,900	230,100	151,300	69,500	44,100
Black	86,400	3,100	11,300	12,200	14,600	14,500	12,000	8,100	5,900	3,000	1,500
Hispanic	72,700	3,700	13,100	11,200	14,700	11,400	8,400	5,100	2,600	1,600	1,000
Asian/Pacific Islander	237,100	8,600	37,300	43,400	45,900	38,200	26,300	19,400	11,100	4,100	2,900
Other	6,700	S	1,300	1,200	1,000	900	600	600	600	200	100
Computer and math scientists	1,182,100	23,800	130,900	165,100	226,200	202,400	178,100	136,000	78,200	29,300	12,100
Male	861,400	17,100	100,300	124,200	155,700	140,600	132,200	97,300	59,500	24,700	9,900
Female	320,600	6,700	30,600	40,900	70,600	61,800	45,900	38,700	18,700	4,600	2,200
White	933,200	16,500	90,300	118,600	177,800	160,800	148,600	115,600	68,600	26,100	10,400
Black	53,000	1,100	7,800	8,000	9,400	8,700	7,100	5,400	3,300	1,500	600
Hispanic	37,700	1,400	6,100	6,200	9,300	6,300	4,200	2,500	700	800	300
Asian/Pacific Islander	155,500	4,700	25,900	31,700	29,400	26,200	18,100	12,400	5,400	900	700
Other	2,700	S	900	600	400	S	S	S	S	S	S
Life and related scientists	346,300	14,400	41,600	42,400	50,800	52,200	50,400	40,300	28,900	14,700	10,500
Male	219,500	5,000	18,400	24,600	29,700	32,900	35,700	29,200	21,700	12,500	9,700
Female	126,800	9,400	23,200	17,800	21,200	19,300	14,700	11,100	7,200	2,200	800
White	288,800	10,500	33,500	34,800	39,500	43,300	44,300	35,200	26,100	12,600	9,000
Black	6,600	500	300	500	900	1,300	1,800	700	200	400	100
Hispanic	11,000	1,100	2,400	1,400	1,700	2,100	800	600	200	300	300
Asian/Pacific Islander	38,300	2,300	5,300	5,400	8,400	5,200	3,300	3,600	2,300	1,300	1,100
Other	1,600	S	S	300	300	200	300	100	100	S	S
Physical and related scientists	303,600	8,400	39,600	35,000	45,100	47,300	41,200	32,300	27,800	15,200	11,600
Male	232,800	4,600	25,400	23,400	35,000	35,600	32,300	27,400	24,200	13,500	11,400
Female	70,800	3,800	14,200	11,500	10,000	11,800	8,900	4,900	3,600	1,700	200
White	256,700	7,300	33,900	27,900	35,600	40,600	35,300	28,800	23,300	13,400	10,700
Black	9,400	500	1,000	1,600	2,300	1,400	900	700	800	100	100
Hispanic	8,300	200	1,500	1,200	1,700	800	1,200	500	700	200	S
Asian/Pacific Islander	28,300	400	3,100	4,200	5,300	4,400	3,600	2,200	3,000	1,500	600
Other	900	S	100	100	200	100	100	100	100	S	S
Social and related scientists	368,700	12,100	51,400	40,800	34,800	47,200	56,500	54,600	36,500	19,200	15,500
Male	169,000	4,100	16,700	15,500	14,500	21,300	26,000	27,900	22,100	11,100	9,600

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-34.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Female	199,700	8,000	34,700	25,200	20,300	25,900	30,400	26,800	14,400	8,100	5,900
White	319,100	8,700	43,000	34,200	27,900	39,400	50,600	50,400	33,300	17,400	14,000
Black	17,300	1,100	2,200	2,100	2,000	3,100	2,200	1,300	1,600	1,100	600
Hispanic	15,700	900	3,100	2,300	2,100	2,100	2,200	1,500	1,100	300	200
Asian/Pacific Islander	15,000	1,200	3,000	2,000	2,700	2,300	1,400	1,200	300	300	500
Other	1,500	S	S	200	100	200	100	200	200	S	100
Engineers	1,396,100	26,700	156,300	178,000	237,700	232,800	168,500	165,100	106,900	73,600	50,500
Male	1,263,100	19,400	126,100	151,900	209,400	209,200	159,500	160,700	104,900	71,900	50,100
Female	133,000	7,300	30,200	26,100	28,300	23,600	9,000	4,400	2,000	1,700	500
White	1,143,200	20,900	120,500	138,100	194,300	192,700	140,400	140,400	88,400	62,200	45,400
Black	38,600	900	6,300	5,700	7,300	8,100	4,100	3,500	1,300	1,000	300
Hispanic	50,400	1,100	7,400	9,100	9,800	9,900	4,500	2,900	2,600	1,400	1,700
Asian/Pacific Islander	159,400	3,800	21,500	24,100	25,700	21,200	18,800	18,100	14,400	8,800	3,000
Other	4,600	S	600	1,000	600	900	700	300	100	S	S
Bachelor's											
S&E occupations	2,027,200	82,500	316,900	269,100	347,100	328,700	257,400	202,300	112,200	65,600	45,500
Male	1,589,700	48,800	221,700	206,600	267,200	258,400	213,500	172,800	95,300	61,700	43,800
Female	437,500	33,700	95,200	62,500	79,900	70,300	43,900	29,500	16,900	3,900	1,700
White	1,707,300	62,100	250,000	222,500	294,900	278,800	223,500	176,400	98,400	58,000	42,700
Black	76,400	4,000	13,600	10,700	14,900	13,800	8,100	6,100	3,100	1,900	S
Hispanic	76,000	4,700	17,500	11,800	14,000	14,000	6,200	4,200	1,500	800	1,400
Asian/Pacific Islander	160,900	11,400	34,500	22,500	22,300	21,100	18,800	15,300	9,000	4,900	1,100
Other	6,600	S	1,300	1,600	900	1,000	900	S	S	S	S
Scientists	1,103,200	56,500	192,000	154,900	192,300	173,900	148,900	98,000	54,900	21,300	10,600
Male	754,600	29,800	121,100	107,700	129,500	116,800	110,900	71,700	38,800	18,900	9,400
Female	348,600	26,700	70,900	47,100	62,800	57,100	38,000	26,300	16,100	2,400	S
White	920,900	41,600	150,100	127,900	161,700	146,300	129,700	85,200	49,000	19,200	10,200
Black	48,500	3,100	8,300	7,200	9,400	8,200	5,400	3,700	2,200	S	S
Hispanic	41,600	3,600	11,000	5,800	8,000	7,000	3,400	2,200	S	S	S
Asian/Pacific Islander	89,000	7,900	21,900	13,300	12,600	11,900	10,300	6,700	3,200	900	S
Other	3,100	S	700	700	500	S	S	S	S	S	S
Computer and math scientists	750,000	23,100	100,300	107,900	151,900	129,000	110,900	71,700	36,300	14,600	4,200
Male	546,000	16,700	77,700	82,100	102,400	88,600	85,000	52,300	25,300	12,900	2,900
Female	204,000	6,400	22,500	25,800	49,500	40,400	26,000	19,400	11,000	1,800	S
White	619,300	16,000	73,800	88,200	127,000	107,000	95,100	62,200	32,700	13,400	3,800
Black	35,800	1,100	6,700	5,300	7,000	6,300	4,400	2,900	1,300	S	S
Hispanic	27,100	1,400	5,500	4,100	6,600	5,000	2,800	1,300	S	S	S
Asian/Pacific Islander	66,200	4,600	14,000	9,800	11,000	10,300	8,700	5,200	2,200	S	S
Other	1,700	S	400	S	S	S	S	S	S	S	S
Life and related scientists	137,200	13,700	32,500	20,300	14,800	16,100	18,300	9,900	7,200	2,700	1,800
Male	77,900	4,600	14,900	11,900	8,900	8,500	13,100	7,200	4,600	2,500	1,800
Female	59,300	9,100	17,600	8,500	5,900	7,600	5,200	2,700	2,600	S	S
White	118,500	10,300	26,300	17,800	13,400	14,400	16,700	8,200	6,900	2,700	1,800

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-34.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Black	2,000	500	S	S	S	S	S	S	S	S	S
Hispanic	5,700	1,100	2,100	600	S	1,000	S	S	S	S	S
Asian/Pacific Islander	10,100	1,800	3,800	1,600	700	S	S	1,100	S	S	S
Other	900	S	S	S	S	S	S	S	S	S	S
Physical and related scientists	142,500	8,100	31,600	18,300	20,700	20,600	14,000	11,900	9,800	3,600	3,900
Male	103,100	4,500	19,600	11,500	16,500	16,300	10,300	9,200	8,100	3,300	3,900
Female	39,400	3,600	12,000	6,800	4,200	4,300	3,800	2,700	1,700	S	S
White	123,000	7,000	27,400	14,800	17,100	18,600	12,200	10,700	8,100	3,000	3,900
Black	6,100	500	700	1,300	1,700	S	S	S	S	S	S
Hispanic	4,600	200	1,300	S	900	S	S	S	S	S	S
Asian/Pacific Islander	8,600	S	2,100	1,400	800	900	1,000	S	S	S	S
Other	S	S	S	S	S	S	S	S	S	S	S
Social and related scientists	73,400	11,600	27,700	8,400	4,900	8,100	5,700	4,400	S	S	S
Male	27,600	4,000	8,900	2,200	S	3,400	2,600	3,000	S	S	S
Female	45,800	7,600	18,800	6,100	3,200	4,700	3,100	S	S	S	S
White	60,200	8,300	22,600	7,100	4,200	6,200	5,700	4,100	S	S	S
Black	4,600	1,000	900	S	S	S	S	S	S	S	S
Hispanic	4,300	900	2,100	S	S	S	S	S	S	S	S
Asian/Pacific Islander	4,000	1,100	2,000	S	S	S	S	S	S	S	S
Other	S	S	S	S	S	S	S	S	S	S	S
Engineers	924,000	26,000	124,900	114,200	154,800	154,800	108,500	104,300	57,300	44,300	34,900
Male	835,100	19,000	100,600	98,800	137,700	141,600	102,600	101,100	56,500	42,700	34,500
Female	88,800	7,000	24,300	15,400	17,100	13,200	5,900	3,200	800	1,500	S
White	786,400	20,500	99,900	94,600	133,100	132,500	93,800	91,200	49,500	38,800	32,500
Black	27,900	900	5,400	3,500	5,500	5,600	2,700	2,300	S	S	S
Hispanic	34,400	1,100	6,500	6,100	6,000	7,000	2,800	2,000	1,100	S	1,200
Asian/Pacific Islander	71,900	3,500	12,500	9,200	9,700	9,200	8,500	8,600	5,700	4,000	900
Other	3,400	S	500	900	400	500	700	S	S	S	S
Master's											
S&E occupations	1,049,400	2,900	93,800	143,800	171,800	166,300	155,300	145,200	95,800	48,000	26,500
Male	763,100	1,500	59,900	100,500	123,200	118,100	112,600	107,700	79,900	38,100	21,600
Female	286,300	1,400	34,000	43,200	48,600	48,300	42,700	37,500	15,900	9,800	4,900
White	820,500	1,800	64,300	96,800	128,300	133,000	128,100	125,100	79,600	40,900	22,500
Black	36,600	S	3,700	6,200	5,600	6,500	6,200	3,700	2,400	1,400	1,000
Hispanic	33,600	S	2,800	6,900	7,800	4,700	4,500	2,300	2,600	1,300	500
Asian/Pacific Islander	155,500	1,000	22,400	33,400	29,700	21,500	16,300	13,800	11,000	4,100	2,300
Other	3,100	S	600	500	400	600	S	300	S	S	S
Scientists	665,300	2,200	64,700	91,600	104,100	103,000	105,300	95,400	57,600	25,900	15,400
Male	416,400	1,000	36,100	57,200	65,000	64,000	65,000	58,700	42,700	16,100	10,500
Female	248,900	1,200	28,600	34,400	39,100	39,100	40,300	36,700	14,900	9,700	4,900
White	523,100	1,400	44,800	60,600	75,900	82,200	88,100	83,500	50,000	23,300	13,400
Black	27,700	S	3,000	4,300	4,000	4,200	5,000	2,700	2,100	1,300	1,000
Hispanic	19,800	S	2,000	4,100	4,500	2,100	3,100	1,600	1,300	700	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-34.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Asian/Pacific Islander	92,600	700	14,300	22,200	19,400	14,300	8,900	7,400	4,100	S	700
Other	2,100	S	600	400	300	200	S	200	S	S	S
Computer and math scientists	358,800	700	28,800	50,200	62,700	60,300	56,400	52,500	31,400	10,500	5,300
Male	257,000	400	21,200	36,600	44,100	42,300	38,900	35,700	25,100	8,200	4,500
Female	101,800	S	7,600	13,600	18,700	18,000	17,500	16,800	6,300	2,300	800
White	259,800	500	14,900	26,200	43,400	44,900	45,200	43,800	27,300	9,100	4,400
Black	15,300	S	1,200	2,600	2,300	1,900	2,600	2,000	1,400	700	600
Hispanic	8,800	S	600	1,900	2,300	1,000	1,100	900	S	S	S
Asian/Pacific Islander	74,000	S	11,600	19,400	14,600	12,400	7,400	5,800	2,200	S	S
Other	900	S	S	S	S	S	S	S	S	S	S
Life and related scientists	73,800	700	7,000	9,300	14,300	11,900	9,800	10,900	5,900	3,600	S
Male	44,500	S	2,700	5,400	7,200	6,700	7,000	7,100	5,100	2,300	S
Female	29,400	S	4,300	3,900	7,000	5,200	2,800	3,800	800	1,300	S
White	62,300	S	5,500	7,800	11,200	10,500	8,400	9,900	5,500	3,000	S
Black	2,200	S	200	S	500	S	500	S	S	S	S
Hispanic	1,800	S	200	400	500	S	S	S	S	S	S
Asian/Pacific Islander	7,200	S	1,000	800	2,100	800	400	700	S	S	S
Other	300	S	S	S	S	S	S	S	S	S	S
Physical and related scientists	74,400	300	6,300	8,900	11,000	12,500	14,400	8,700	6,800	3,000	2,600
Male	54,300	S	4,600	6,100	7,700	7,700	10,800	7,200	5,500	2,100	2,600
Female	20,000	S	1,700	2,800	3,300	4,800	3,600	1,400	1,300	900	S
White	62,900	200	5,100	7,100	8,900	10,800	12,700	7,900	5,200	2,700	2,300
Black	2,000	S	300	200	300	600	400	S	S	S	S
Hispanic	1,900	S	200	400	300	S	S	S	S	S	S
Asian/Pacific Islander	7,200	S	700	1,300	1,300	1,000	700	500	1,400	S	S
Other	400	S	S	S	S	S	S	S	S	S	S
Social and related scientists	158,300	500	22,600	23,100	16,100	18,400	24,800	23,300	13,600	8,800	7,100
Male	60,600	S	7,600	9,100	6,100	7,200	8,300	8,700	7,000	3,500	3,100
Female	97,600	400	15,000	14,100	10,100	11,200	16,500	14,600	6,500	5,200	4,000
White	138,200	400	19,300	19,500	12,400	15,900	21,900	21,800	12,000	8,500	6,500
Black	8,100	S	1,300	1,400	900	1,300	1,400	500	600	S	S
Hispanic	7,200	S	900	1,400	1,500	900	1,100	600	S	S	S
Asian/Pacific Islander	4,200	S	900	700	1,400	S	S	300	S	S	S
Other	500	S	S	S	S	S	S	S	S	S	S
Engineers	384,100	700	29,200	52,100	67,700	63,300	50,000	49,800	38,200	22,100	11,100
Male	346,700	500	23,800	43,300	58,200	54,100	47,600	49,000	37,200	22,000	11,100
Female	37,400	300	5,400	8,800	9,500	9,200	2,400	S	900	S	S
White	297,400	400	19,500	36,200	52,400	50,900	40,000	41,600	29,600	17,600	9,100
Black	8,900	S	700	1,900	1,500	2,300	1,200	1,000	S	S	S
Hispanic	13,800	S	800	2,800	3,300	2,600	1,500	600	1,300	600	S
Asian/Pacific Islander	62,900	300	8,200	11,200	10,300	7,200	7,300	6,500	6,900	3,600	1,600
Other	1,000	S	S	S	S	400	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-34.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25		25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
		Doctorate									
S&E occupations	489,900	S	9,000	47,100	73,200	79,300	75,400	75,300	67,900	37,400	25,100
Male	372,900	S	5,400	31,800	52,100	57,900	56,800	58,000	55,800	32,900	22,200
Female	117,000	S	3,700	15,300	21,100	21,400	18,600	17,300	12,100	4,500	2,900
White	386,100	S	6,700	33,000	49,900	58,100	61,800	63,500	59,700	31,900	21,600
Black	11,100	S	300	1,000	1,500	2,100	1,600	1,900	1,400	800	600
Hispanic	13,000	S	300	1,500	2,500	2,600	2,100	1,500	1,100	800	600
Asian/Pacific Islander	78,000	S	1,800	11,400	19,100	16,300	9,700	8,200	5,400	3,700	2,200
Other	1,600	S	S	200	200	200	200	200	300	200	100
Scientists	404,000	S	6,800	35,700	58,000	65,800	65,400	64,600	56,700	30,200	20,700
Male	293,500	S	3,700	22,300	38,600	45,500	47,500	47,600	44,800	25,800	17,800
Female	110,400	S	3,200	13,500	19,400	20,300	17,900	16,900	11,900	4,500	2,900
White	328,500	S	5,600	26,000	41,200	50,000	55,200	56,100	50,500	26,200	17,800
Black	9,400	S	100	700	1,200	1,900	1,400	1,700	1,400	700	600
Hispanic	11,100	S	100	1,300	2,100	2,200	1,900	1,300	1,000	700	500
Asian/Pacific Islander	53,500	S	1,000	7,600	13,400	11,600	6,700	5,300	3,600	2,500	1,700
Other	1,500	S	S	200	200	200	200	200	300	200	100
Computer and math scientists	67,500	S	1,900	6,500	10,500	10,700	10,000	11,300	10,100	4,100	2,600
Male	55,300	S	1,400	4,900	8,300	8,900	8,200	8,800	8,600	3,600	2,400
Female	12,300	S	500	1,500	2,200	1,800	1,800	2,500	1,400	500	100
White	49,900	S	1,500	3,800	6,300	6,900	7,800	9,100	8,600	3,500	2,300
Black	1,400	S	S	100	100	200	100	400	400	100	100
Hispanic	1,600	S	S	200	300	200	200	300	300	S	S
Asian/Pacific Islander	14,600	S	300	2,400	3,800	3,300	1,800	1,400	800	500	200
Other	100	S	S	S	S	S	S	S	S	S	S
Life and related scientists	122,300	S	2,000	12,500	20,900	21,600	19,800	17,100	15,400	7,400	5,600
Male	86,900	S	800	7,400	12,900	15,300	14,100	13,100	11,800	6,800	4,800
Female	35,400	S	1,200	5,200	8,000	6,300	5,700	4,000	3,500	600	800
White	96,600	S	1,600	8,900	14,500	16,000	17,100	14,700	13,300	6,100	4,400
Black	2,200	S	S	200	400	600	300	300	200	100	100
Hispanic	3,500	S	S	400	800	900	400	200	200	300	300
Asian/Pacific Islander	19,600	S	400	2,900	5,100	4,000	2,000	1,900	1,700	900	700
Other	400	S	S	S	100	100	S	100	S	S	S
Physical and related scientists	86,300	S	1,800	7,700	13,200	14,200	12,800	11,700	11,300	8,600	5,000
Male	75,000	S	1,200	5,700	10,700	11,600	11,200	11,000	10,600	8,100	4,800
Female	11,300	S	500	1,900	2,600	2,600	1,600	800	700	500	100
White	70,400	S	1,500	5,900	9,300	11,200	10,500	10,200	10,100	7,600	4,300
Black	1,300	S	S	100	300	200	300	100	100	S	100
Hispanic	1,800	S	S	200	500	300	200	200	200	100	S
Asian/Pacific Islander	12,500	S	300	1,500	3,100	2,500	1,900	1,200	800	800	500
Other	300	S	S	S	S	S	S	100	100	S	S
Social and related scientists	127,800	S	1,200	9,100	13,500	19,300	22,800	24,400	19,900	10,100	7,600
Male	76,400	S	200	4,200	6,800	9,800	14,000	14,700	13,700	7,200	5,800

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-34.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Female	51,400	S	900	4,900	6,700	9,500	8,800	9,700	6,200	2,800	1,800
White	111,600	S	1,100	7,400	11,100	15,900	19,800	22,100	18,600	9,000	6,800
Black	4,600	S	S	300	400	900	800	800	700	500	300
Hispanic	4,200	S	S	500	600	700	1,100	600	300	300	200
Asian/Pacific Islander	6,800	S	100	800	1,300	1,800	1,000	900	200	300	300
Other	700	S	S	100	100	100	100	S	200	S	100
Engineers	85,900	S	2,200	11,400	15,200	13,500	10,000	10,800	11,200	7,200	4,400
Male	79,400	S	1,700	9,600	13,500	12,400	9,300	10,400	11,000	7,200	4,300
Female	6,500	S	500	1,800	1,700	1,200	700	400	200	S	100
White	57,600	S	1,000	7,000	8,700	8,100	6,600	7,400	9,200	5,700	3,800
Black	1,700	S	200	300	300	300	200	200	100	100	S
Hispanic	1,900	S	200	300	400	300	200	200	100	100	S
Asian/Pacific Islander	24,500	S	800	3,700	5,700	4,800	3,000	2,900	1,800	1,200	500
Other	100	S	S	S	S	S	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^Includes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-35.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
		All degree levels ^a									
S&E occupations	3,391,300	83,100	428,000	625,200	616,900	521,700	421,800	284,800	197,500	119,900	92,400
Male	2,619,300	53,600	302,000	457,900	462,900	405,900	335,000	236,100	174,200	108,300	83,400
Female	772,000	29,600	126,000	167,300	154,100	115,800	86,800	48,700	23,300	11,500	9,000
White	2,845,400	70,000	348,000	506,300	510,000	439,200	364,600	242,300	171,300	107,400	86,300
Black	122,800	3,800	19,300	25,600	25,700	19,900	12,800	7,400	4,400	2,300	1,600
Hispanic	100,700	2,800	16,200	25,600	18,700	13,800	8,300	7,500	4,300	2,100	1,400
Asian/Pacific Islander	311,800	6,500	42,900	66,200	60,100	47,400	35,100	26,500	16,400	7,900	2,800
Other	10,500	S	1,600	1,500	2,400	1,500	1,000	1,100	1,000	200	200
Scientists	1,950,900	53,600	242,100	347,800	363,500	327,400	253,800	166,400	98,900	55,200	42,100
Male	1,303,000	29,900	146,100	220,000	233,800	223,800	173,900	119,900	77,600	43,800	34,100
Female	647,900	23,800	96,000	127,800	129,800	103,600	79,800	46,500	21,200	11,400	8,000
White	1,641,400	45,500	195,800	275,600	299,900	279,400	225,400	145,200	87,200	49,000	38,600
Black	81,700	3,000	12,800	16,600	16,100	14,200	8,200	5,400	2,700	1,500	1,200
Hispanic	55,900	1,800	8,700	14,600	9,900	8,500	4,300	4,500	2,000	900	700
Asian/Pacific Islander	165,500	3,300	23,700	40,500	35,900	24,600	15,100	10,700	6,700	3,500	1,600
Other	6,400	S	1,200	600	1,700	800	700	800	300	200	S
Computer and math scientists	1,010,900	19,000	130,100	212,900	201,200	171,400	130,200	77,100	40,900	17,800	10,300
Male	701,000	12,500	85,300	140,100	138,500	120,200	90,400	58,000	33,100	14,600	8,300
Female	309,900	6,500	44,800	72,800	62,700	51,200	39,800	19,100	7,800	3,200	2,100
White	842,200	15,900	103,800	169,400	164,300	145,100	115,200	67,400	35,700	15,700	9,700
Black	45,600	1,000	7,600	10,600	9,900	7,500	4,500	2,500	1,300	600	300
Hispanic	27,300	400	4,100	8,200	4,700	4,600	1,800	2,300	1,000	S	100
Asian/Pacific Islander	93,300	1,700	14,300	24,300	21,500	14,000	8,600	4,600	2,700	1,300	200
Other	2,500	S	400	400	800	S	300	200	200	S	S
Life and related scientists	328,000	10,500	39,800	49,900	63,600	56,200	40,400	30,600	17,600	10,200	9,300
Male	215,500	5,900	22,000	26,600	36,800	40,800	30,600	21,500	14,800	8,200	8,200
Female	112,500	4,700	17,900	23,300	26,800	15,400	9,800	9,000	2,800	1,900	1,100
White	273,500	8,800	31,900	38,900	52,300	47,600	35,300	26,100	15,400	8,700	8,400
Black	10,500	S	1,800	1,800	1,700	2,000	900	700	300	300	300
Hispanic	10,400	700	1,900	2,300	1,600	1,400	900	900	300	300	200
Asian/Pacific Islander	32,500	400	4,100	6,700	7,400	5,000	3,100	2,900	1,600	800	400
Other	1,200	S	200	100	600	200	100	S	S	S	S
Physical and related scientists	289,100	10,600	37,600	50,300	50,700	41,200	31,500	25,600	18,900	12,100	10,600
Male	226,900	6,800	25,300	37,300	37,300	33,900	26,200	22,000	17,000	11,400	9,600
Female	62,300	3,800	12,300	13,000	13,500	7,300	5,300	3,600	1,900	700	900
White	244,300	9,200	31,200	40,000	42,600	35,400	27,800	21,600	16,100	10,900	9,500
Black	8,200	400	1,400	1,800	1,600	1,000	500	600	400	100	300
Hispanic	7,600	300	1,100	2,100	1,600	800	500	500	500	200	100
Asian/Pacific Islander	27,900	700	3,600	6,300	4,700	3,800	2,600	2,800	1,900	800	700
Other	1,000	S	S	100	200	200	100	100	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-35.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Social and related scientists	322,900	13,500	34,600	34,800	47,900	58,600	51,700	33,100	21,400	15,200	12,000
Male	159,600	4,800	13,600	16,000	21,100	28,900	26,700	18,300	12,700	9,600	8,000
Female	163,200	8,800	21,000	18,800	26,800	29,700	25,000	14,800	8,800	5,600	4,000
White	281,400	11,500	28,900	27,300	40,600	51,200	47,100	30,000	20,000	13,700	11,000
Black	17,400	1,000	2,000	2,300	2,900	3,700	2,300	1,600	700	500	300
Hispanic	10,600	S	1,600	1,900	2,000	1,700	1,100	800	300	300	300
Asian/Pacific Islander	11,800	500	1,800	3,200	2,300	1,700	800	400	400	600	300
Other	1,700	S	300	S	200	300	300	400	100	S	S
Engineers	1,440,400	29,500	185,900	277,400	253,400	194,300	168,000	118,400	98,600	64,700	50,300
Male	1,316,300	23,700	155,800	237,900	229,100	182,100	161,100	116,200	96,600	64,500	49,300
Female	124,100	5,800	30,000	39,500	24,300	12,200	6,900	2,200	2,000	200	1,000
White	1,204,000	24,500	152,200	230,700	210,100	159,800	139,200	97,100	84,100	58,400	47,800
Black	41,100	800	6,600	9,000	9,500	5,700	4,500	2,100	1,700	700	500
Hispanic	44,800	900	7,600	11,000	8,800	5,300	4,000	3,000	2,300	1,200	700
Asian/Pacific Islander	146,300	3,200	19,100	25,700	24,200	22,800	20,000	15,900	9,800	4,400	1,300
Other	4,100	S	400	900	700	700	300	300	700	S	S
Bachelor's											
S&E occupations	2,036,400	80,900	335,900	416,900	371,500	279,200	211,200	129,700	100,600	64,900	45,600
Male	1,599,600	52,000	238,900	308,400	288,100	227,600	175,800	112,400	91,900	61,000	43,400
Female	436,800	28,900	97,000	108,500	83,400	51,600	35,400	17,300	8,700	3,900	2,200
White	1,744,500	68,100	279,400	353,100	317,700	240,700	184,200	111,100	87,200	59,400	43,600
Black	85,800	3,800	16,400	20,300	18,100	11,300	7,400	4,000	3,000	900	S
Hispanic	64,900	2,700	13,500	17,600	11,500	7,500	4,300	3,600	2,600	1,000	700
Asian/Pacific Islander	134,100	6,200	25,200	24,900	22,500	18,600	14,800	10,400	7,100	3,500	800
Other	7,100	S	1,400	1,000	1,700	1,100	500	500	700	S	S
Scientists	1,025,400	52,400	186,300	217,500	193,600	153,400	103,100	57,200	35,300	16,900	9,700
Male	677,000	29,100	113,700	135,900	126,400	109,200	72,600	40,800	28,000	13,200	8,000
Female	348,400	23,200	72,600	81,600	67,200	44,200	30,500	16,400	7,300	3,800	1,700
White	872,900	44,300	154,100	180,000	165,100	132,700	90,900	50,200	31,100	15,500	9,000
Black	53,300	3,000	10,700	13,300	10,000	7,700	4,100	2,400	1,400	300	S
Hispanic	32,300	1,800	6,800	9,500	5,200	4,000	1,900	1,700	900	S	S
Asian/Pacific Islander	62,700	3,200	13,700	14,100	12,000	8,400	5,900	2,600	1,700	900	S
Other	4,100	S	1,000	500	1,300	500	300	S	S	S	S
Computer and math scientists	686,600	18,500	107,600	161,100	139,700	109,300	76,000	40,200	22,800	8,500	2,900
Male	465,000	12,200	70,100	103,300	94,400	77,100	52,400	28,500	18,000	6,600	2,300
Female	221,600	6,300	37,500	57,800	45,300	32,200	23,600	11,600	4,800	1,900	600
White	582,500	15,500	88,600	132,900	117,600	94,200	67,000	36,100	20,000	7,700	2,700
Black	35,300	1,000	6,700	9,200	7,900	5,100	3,000	1,300	900	S	S
Hispanic	20,200	400	3,300	6,900	3,500	3,100	1,100	1,200	600	S	S
Asian/Pacific Islander	46,500	1,600	8,700	11,700	10,000	6,800	4,500	1,400	1,100	600	S
Other	2,000	S	S	300	700	S	300	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-35.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Life and related scientists	134,200	10,400	30,100	20,900	24,700	19,600	10,800	8,200	4,700	2,800	1,900
Male	83,600	5,700	16,900	10,000	13,400	15,700	8,600	5,800	3,700	2,400	1,400
Female	50,600	4,700	13,200	10,900	11,300	4,000	2,200	2,500	900	S	600
White	116,300	8,700	24,900	17,700	22,200	17,500	9,500	7,200	4,400	2,600	1,700
Black	5,800	S	1,300	1,200	600	1,000	S	S	S	S	S
Hispanic	5,200	700	1,700	1,000	500	400	400	S	S	S	S
Asian/Pacific Islander	6,300	400	2,200	1,000	1,000	600	600	300	S	S	S
Other	700	S	S	S	S	S	S	S	S	S	S
Physical and related scientists	134,000	10,400	27,900	25,300	22,300	16,400	10,300	7,000	6,600	3,900	4,000
Male	98,900	6,600	18,400	18,100	16,300	12,800	8,000	5,800	5,800	3,700	3,400
Female	35,100	3,800	9,500	7,200	6,000	3,600	2,300	1,100	800	S	500
White	116,000	9,000	23,700	21,600	19,800	14,400	9,200	5,500	5,600	3,600	3,700
Black	5,800	400	1,300	1,500	900	500	S	500	S	S	S
Hispanic	3,900	200	900	1,100	900	300	S	S	S	S	S
Asian/Pacific Islander	7,500	700	1,800	1,000	600	1,000	700	800	500	S	S
Other	700	S	S	S	S	S	S	S	S	S	S
Social and related scientists	70,700	13,100	20,600	10,100	6,900	8,100	6,000	1,900	1,200	1,800	1,000
Male	29,500	4,600	8,300	4,500	2,300	3,600	3,700	700	S	600	1,000
Female	41,200	8,500	12,400	5,600	4,600	4,500	2,400	1,200	800	1,200	S
White	58,100	11,100	16,900	7,700	5,600	6,600	5,300	1,400	1,000	1,600	800
Black	6,400	1,000	1,400	1,400	600	1,100	500	S	S	S	S
Hispanic	3,100	S	1,000	600	S	S	S	S	S	S	S
Asian/Pacific Islander	2,300	S	1,000	400	S	S	S	S	S	S	S
Other	700	S	S	S	S	S	S	S	S	S	S
Engineers	1,011,000	28,500	149,700	199,500	177,900	125,800	108,000	72,500	65,300	48,000	35,900
Male	922,600	22,900	125,300	172,500	161,700	118,400	103,100	71,600	63,900	47,800	35,400
Female	88,400	5,700	24,400	27,000	16,200	7,400	4,900	900	1,400	S	S
White	871,500	23,800	125,300	173,100	152,600	108,000	93,300	60,900	56,100	44,000	34,600
Black	32,500	800	5,800	7,000	8,000	3,600	3,300	1,600	1,500	600	S
Hispanic	32,600	900	6,700	8,100	6,300	3,500	2,300	1,900	1,700	700	500
Asian/Pacific Islander	71,400	3,000	11,500	10,800	10,500	10,200	8,900	7,900	5,400	2,600	600
Other	3,000	S	400	500	400	600	S	S	S	S	S
Master's											
S&E occupations	916,500	2,200	84,500	158,700	170,000	164,400	138,000	91,200	54,700	28,200	24,600
Male	677,200	1,600	57,800	114,000	118,700	120,800	104,000	70,900	45,900	23,700	19,700
Female	239,300	600	26,700	44,700	51,300	43,600	34,000	20,300	8,800	4,500	4,900
White	744,100	1,900	63,400	117,100	135,400	135,300	118,800	76,700	47,900	24,900	22,700
Black	26,900	S	2,600	4,200	5,900	6,600	3,200	2,100	900	700	800
Hispanic	25,100	S	2,400	6,200	4,800	4,500	2,900	2,500	1,000	600	300
Asian/Pacific Islander	118,400	200	16,000	30,900	23,200	17,900	13,000	9,700	4,700	2,100	600
Other	1,900	S	S	400	600	S	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-35.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Scientists	556,400	1,300	50,200	90,100	106,500	105,900	88,600	55,200	28,700	16,200	13,700
Male	348,900	700	28,900	56,700	62,500	66,200	56,300	36,000	20,500	11,800	9,300
Female	207,500	500	21,300	33,400	44,000	39,700	32,400	19,200	8,300	4,400	4,400
White	460,500	1,200	37,800	65,400	85,300	89,800	80,200	47,900	25,700	14,500	12,700
Black	19,400	S	1,900	2,300	4,600	4,800	2,300	1,700	700	500	600
Hispanic	14,200	S	1,500	3,400	2,500	2,900	1,300	1,600	500	S	S
Asian/Pacific Islander	61,600	S	8,900	18,800	13,900	8,400	4,700	3,800	1,800	800	200
Other	800	S	S	S	300	S	S	S	S	S	S
Computer and math scientists	271,900	500	21,300	45,200	54,100	52,600	45,400	27,400	13,200	6,900	5,300
Male	192,300	200	14,400	31,300	37,700	36,000	30,900	21,200	10,800	5,800	4,000
Female	79,600	S	6,900	13,900	16,400	16,600	14,500	6,200	2,500	1,100	1,300
White	218,200	400	14,700	31,900	41,500	43,100	40,800	23,200	11,400	6,200	5,100
Black	8,600	S	900	1,200	1,700	2,100	1,100	900	300	S	S
Hispanic	5,800	S	600	1,200	1,100	1,200	500	1,000	S	S	S
Asian/Pacific Islander	39,000	S	5,100	10,900	9,600	6,100	3,100	2,300	1,200	500	S
Other	300	S	S	S	S	S	S	S	S	S	S
Life and related scientists	72,200	S	7,500	14,300	13,800	12,700	11,300	7,600	2,600	1,500	800
Male	41,200	S	3,700	7,600	6,300	8,100	8,000	4,100	1,800	900	600
Female	31,000	S	3,800	6,700	7,500	4,700	3,300	3,500	800	600	S
White	58,500	S	5,400	10,700	10,600	10,800	10,100	6,400	2,100	1,400	800
Black	2,800	S	400	500	700	500	300	S	S	S	S
Hispanic	1,900	S	100	400	200	500	S	S	S	S	S
Asian/Pacific Islander	9,000	S	1,500	2,700	2,200	800	600	800	S	S	S
Other	S	S	S	S	S	S	S	S	S	S	S
Physical and related scientists	75,400	300	8,500	14,000	14,600	12,400	10,600	6,700	3,500	2,600	2,500
Male	57,900	200	6,000	10,400	9,200	10,000	8,700	5,400	3,200	2,400	2,300
Female	17,600	100	2,500	3,500	5,400	2,300	1,900	1,300	300	S	S
White	63,500	200	6,600	10,000	12,300	11,300	9,600	5,900	3,100	2,300	2,100
Black	1,300	S	100	100	600	S	S	S	S	S	S
Hispanic	2,000	S	200	700	300	S	S	S	S	S	S
Asian/Pacific Islander	8,600	S	1,600	3,100	1,300	700	800	700	S	S	S
Other	S	S	S	S	S	S	S	S	S	S	S
Social and related scientists	136,900	400	12,900	16,600	24,100	28,100	21,300	13,400	9,500	5,200	5,200
Male	57,500	S	4,800	7,400	9,400	12,100	8,700	5,300	4,700	2,600	2,300
Female	79,400	S	8,100	9,300	14,700	16,000	12,600	8,100	4,800	2,600	2,900
White	120,300	400	11,200	12,900	20,800	24,500	19,700	12,400	9,100	4,600	4,800
Black	6,800	S	500	600	1,600	2,000	800	600	S	S	S
Hispanic	4,500	S	600	1,100	900	800	400	400	S	S	S
Asian/Pacific Islander	5,000	S	700	2,100	800	800	S	S	S	S	S
Other	300	S	S	S	S	S	S	S	S	S	S
Engineers	360,000	900	34,300	68,600	63,400	58,500	49,400	36,000	25,900	12,000	10,900
Male	328,300	800	28,900	57,300	56,200	54,600	47,800	34,900	25,400	12,000	10,400
Female	31,800	100	5,400	11,300	7,300	3,900	1,600	1,100	500	S	S
White	283,700	800	25,600	51,600	50,100	45,500	38,600	28,800	22,200	10,400	10,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-35.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Black	7,500	S	800	1,800	1,300	1,800	900	300	S	S	S
Hispanic	10,900	S	900	2,700	2,300	1,600	1,600	900	400	300	S
Asian/Pacific Islander	56,900	100	7,100	12,000	9,300	9,500	8,300	5,900	2,900	1,200	400
Other	1,000	S	S	300	300	S	S	S	S	S	S
Doctorate											
S&E occupations	402,100	S	6,800	45,700	70,000	70,300	67,100	61,000	37,900	24,600	18,600
Male	316,400	S	4,800	32,500	51,900	53,400	51,300	51,000	32,900	21,900	16,800
Female	85,600	S	2,000	13,200	18,000	16,900	15,800	9,900	5,000	2,800	1,900
White	326,500	S	4,700	33,500	52,200	56,700	56,900	51,800	32,300	21,400	16,900
Black	9,000	S	300	800	1,600	1,600	2,000	1,300	600	700	200
Hispanic	9,300	S	400	1,300	2,200	1,500	1,100	1,400	700	500	300
Asian/Pacific Islander	55,700	S	1,400	10,000	13,700	10,200	6,800	6,200	4,100	1,900	1,200
Other	1,500	S	100	S	200	200	300	300	100	200	S
Scientists	335,700	S	5,000	36,800	58,400	60,700	56,900	51,500	30,600	20,200	15,700
Male	253,700	S	3,100	24,700	41,200	44,600	41,400	41,800	25,700	17,400	13,800
Female	82,000	S	1,900	12,000	17,200	16,100	15,500	9,700	5,000	2,800	1,900
White	280,200	S	3,400	27,700	45,400	50,700	49,900	44,700	26,700	17,500	14,300
Black	8,100	S	200	700	1,500	1,500	1,600	1,200	500	700	200
Hispanic	8,100	S	300	1,200	2,000	1,200	1,000	1,100	600	400	300
Asian/Pacific Islander	37,900	S	900	7,100	9,300	7,100	4,100	4,200	2,700	1,400	900
Other	1,400	S	100	S	100	200	300	300	100	200	S
Computer and math scientists	49,400	S	1,200	5,400	7,200	8,900	8,700	9,300	4,700	2,100	2,000
Male	41,000	S	700	4,400	6,200	6,700	7,000	8,100	4,100	1,900	1,800
Female	8,400	S	400	1,000	1,000	2,200	1,700	1,200	600	100	200
White	39,100	S	500	3,600	5,000	7,200	7,400	7,900	4,100	1,500	1,900
Black	1,300	S	S	100	200	300	100	200	100	300	S
Hispanic	1,300	S	S	100	200	300	200	200	S	S	100
Asian/Pacific Islander	7,600	S	500	1,600	1,800	1,100	1,000	900	500	200	S
Other	200	S	S	S	S	S	S	S	S	S	S
Life and related scientists	99,500	S	1,500	12,800	21,500	19,000	15,200	13,600	7,500	4,500	3,900
Male	74,200	S	900	7,900	14,500	14,200	11,400	11,000	6,700	4,000	3,600
Female	25,300	S	600	4,900	7,000	4,800	3,800	2,600	800	600	300
White	81,000	S	1,100	9,400	16,600	15,400	13,200	11,500	6,400	3,900	3,500
Black	1,600	S	S	200	400	200	300	100	100	100	S
Hispanic	2,400	S	S	500	700	300	100	300	200	S	100
Asian/Pacific Islander	14,200	S	200	2,600	3,700	3,000	1,500	1,600	800	400	200
Other	300	S	S	S	S	100	S	S	S	S	S
Physical and related scientists	79,000	S	1,200	11,000	13,800	12,400	10,500	11,500	8,800	5,600	4,200
Male	69,800	S	900	8,800	11,700	11,100	9,500	10,700	7,900	5,300	3,900
Female	9,200	S	300	2,200	2,100	1,400	1,100	800	900	300	300
White	64,100	S	900	8,300	10,400	9,700	9,000	9,800	7,400	4,900	3,700
Black	1,200	S	S	200	200	400	200	S	100	100	S
Hispanic	1,800	S	100	300	400	200	200	300	200	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-35.

Individuals in labor force in S&E occupations by highest degree attained, occupation, sex, race/ethnicity, and age: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Age (years)									
		Less than 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Asian/Pacific Islander	11,800	S	200	2,200	2,700	2,100	1,100	1,300	1,100	500	400
Other	200	S	S	S	S	S	100	S	S	S	S
Social and related scientists	107,800	S	1,000	7,600	15,900	20,400	22,500	17,100	9,700	8,000	5,500
Male	68,700	S	500	3,700	8,800	12,600	13,500	12,000	6,900	6,200	4,500
Female	39,100	S	600	3,900	7,100	7,800	8,900	5,200	2,700	1,800	1,100
White	96,000	S	800	6,500	13,300	18,300	20,300	15,500	8,800	7,200	5,200
Black	4,100	S	S	200	700	600	1,000	700	300	200	S
Hispanic	2,700	S	S	300	700	500	500	300	200	100	S
Asian/Pacific Islander	4,300	S	S	700	1,100	800	500	300	200	400	200
Other	700	S	S	S	100	100	200	200	100	S	S
Engineers	66,400	S	1,800	9,000	11,600	9,600	10,200	9,500	7,200	4,500	3,000
Male	62,700	S	1,700	7,800	10,700	8,800	9,900	9,300	7,200	4,500	3,000
Female	3,600	S	100	1,200	800	800	300	200	100	S	S
White	46,300	S	1,300	5,800	6,800	6,000	7,000	7,100	5,700	3,900	2,600
Black	1,000	S	S	100	100	200	400	100	S	S	S
Hispanic	1,200	S	S	200	200	200	100	200	100	S	S
Asian/Pacific Islander	17,800	S	500	2,800	4,400	3,100	2,700	2,000	1,400	500	300
Other	100	S	S	S	S	S	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^Includes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

Appendix table 3-36.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1999

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
		All degree levels^a									
S&E degree fields	8,131,400	277,100	1,142,100	998,000	1,076,100	1,171,400	1,210,700	1,045,800	632,700	330,400	247,100
Male	5,307,200	118,600	613,400	630,200	701,700	770,100	805,500	736,500	468,600	262,300	200,300
Female	2,824,200	158,500	528,800	367,800	374,400	401,300	405,200	309,200	164,000	68,100	46,800
White	6,667,600	216,500	882,400	791,800	862,700	955,800	1,024,800	893,900	536,400	280,200	223,100
Black	429,600	15,600	72,100	53,000	57,500	63,300	65,600	49,000	30,800	14,100	8,600
Hispanic	329,800	16,400	70,000	48,600	51,500	49,800	38,500	23,500	15,600	10,100	5,800
Asian/Pacific Islander	674,000	28,000	111,000	100,800	100,700	98,600	77,300	75,700	48,000	24,700	9,100
Other	30,300	600	6,700	3,700	3,700	3,900	4,500	3,700	1,900	1,300	400
Sciences	6,163,800	238,100	920,500	743,200	748,400	847,600	974,900	821,400	481,600	225,100	162,900
Male	3,527,200	89,400	433,100	410,200	415,100	482,400	581,400	518,400	321,700	158,700	116,800
Female	2,636,500	148,700	487,300	333,100	333,300	365,300	393,400	303,000	160,000	66,400	46,100
White	5,096,700	187,400	721,000	600,900	604,400	697,800	828,600	706,600	412,800	191,600	145,700
Black	375,100	14,300	62,200	44,200	47,800	51,700	61,300	44,100	28,600	12,800	8,000
Hispanic	251,600	14,500	58,600	36,300	35,600	33,700	31,400	19,200	12,000	6,900	3,400
Asian/Pacific Islander	415,000	21,300	72,800	58,900	57,800	61,400	49,800	48,300	26,500	12,700	5,500
Other	25,300	600	5,900	2,900	2,700	3,000	3,800	3,200	1,800	1,100	200
Computer and math sciences	1,058,900	24,100	115,600	155,600	195,100	165,100	148,400	133,200	75,100	33,700	13,100
Male	717,900	15,800	77,000	106,600	127,400	110,800	99,700	92,800	52,400	26,100	9,400
Female	341,000	8,200	38,600	49,000	67,700	54,300	48,700	40,400	22,700	7,700	3,800
White	834,600	18,400	82,900	113,000	149,800	127,100	123,200	112,400	66,700	29,500	11,600
Black	61,300	1,600	8,900	11,700	12,700	8,000	7,100	5,900	2,800	2,000	600
Hispanic	34,800	1,000	4,700	6,500	8,600	6,300	3,400	2,400	900	800	S
Asian/Pacific Islander	123,700	3,100	18,200	23,700	23,300	22,900	14,200	11,900	4,300	1,300	800
Other	4,600	S	800	800	700	800	600	500	300	S	S
Life and related sciences	1,311,700	57,500	197,800	139,400	155,600	209,100	216,200	163,500	100,200	43,300	29,200
Male	764,200	20,400	95,700	74,900	83,100	121,200	131,900	113,300	67,900	33,100	22,700
Female	547,500	37,100	102,100	64,500	72,500	87,800	84,400	50,100	32,300	10,100	6,500
White	1,094,800	44,800	160,000	112,200	128,500	176,000	185,600	141,400	87,100	34,100	25,100
Black	61,700	3,500	8,600	6,300	8,200	11,100	11,000	6,100	3,500	1,900	1,600
Hispanic	50,800	3,200	11,100	6,800	6,000	7,600	7,400	3,100	2,000	2,500	1,100
Asian/Pacific Islander	99,200	6,000	16,800	13,300	12,200	14,000	11,700	12,100	7,600	4,400	1,300
Other	5,300	S	1,300	800	800	400	500	800	100	300	S
Physical and related sciences	635,300	13,900	65,400	60,300	84,900	100,300	93,300	77,000	67,400	41,700	31,100
Male	492,900	7,700	41,500	42,500	66,200	75,400	75,900	61,300	59,000	35,100	28,200
Female	142,400	6,100	24,000	17,800	18,700	24,900	17,400	15,600	8,400	6,600	2,900
White	532,700	11,800	54,100	48,900	69,000	85,100	78,800	63,500	56,900	36,500	28,000
Black	22,800	600	2,600	2,700	2,900	2,300	3,100	3,400	2,300	1,600	1,200
Hispanic	18,900	600	2,800	2,000	3,400	3,100	2,700	1,200	1,900	700	500
Asian/Pacific Islander	58,300	800	5,500	6,600	9,400	9,400	8,200	8,300	6,000	2,900	1,300
Other	2,600	S	300	200	300	500	500	500	200	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-36.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1999

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Social and related sciences	3,157,800	142,700	541,700	387,900	312,800	373,100	517,000	447,800	239,000	106,400	89,400
Male	1,552,100	45,500	219,000	186,100	138,300	174,900	274,000	250,900	142,300	64,500	56,600
Female	1,605,700	97,200	322,700	201,800	174,500	198,200	243,000	196,900	96,600	41,900	32,800
White	2,634,700	112,400	423,900	326,800	257,200	309,600	441,100	389,200	202,100	91,500	81,000
Black	229,300	8,600	42,100	23,600	24,100	30,300	40,100	28,700	19,900	7,200	4,600
Hispanic	147,100	9,700	40,000	21,000	17,600	16,700	17,900	12,500	7,200	2,900	1,600
Asian/Pacific Islander	133,800	11,500	32,300	15,400	13,000	15,200	15,700	15,900	8,500	4,200	2,200
Other	12,800	S	3,500	1,100	1,000	1,300	2,200	1,400	1,200	600	100
Engineers	1,967,600	39,000	221,700	254,800	327,700	323,800	235,900	224,300	151,000	105,300	84,200
Male	1,780,000	29,200	180,200	220,100	286,600	287,700	224,100	218,100	147,000	103,500	83,400
Female	187,700	9,800	41,500	34,700	41,100	36,100	11,800	6,200	4,100	1,800	700
White	1,570,900	29,000	161,500	191,000	258,400	258,000	196,100	187,300	123,600	88,600	77,400
Black	54,500	1,300	9,900	8,800	9,600	11,600	4,300	4,800	2,300	1,300	600
Hispanic	78,200	1,900	11,400	12,300	15,900	16,100	7,200	4,300	3,600	3,200	2,400
Asian/Pacific Islander	258,900	6,700	38,200	41,900	42,900	37,200	27,500	27,500	21,500	12,000	3,600
Other	5,100	S	800	800	1,000	800	700	500	100	S	S
Bachelor's											
S&E degree fields	5,982,400	273,600	1,013,200	767,000	795,100	847,800	861,600	694,700	368,400	197,400	163,500
Male	3,827,100	117,000	538,300	476,300	509,500	559,300	576,400	494,000	267,500	156,800	132,100
Female	2,155,300	156,500	475,000	290,800	285,600	288,500	285,200	200,700	101,000	40,600	31,400
White	4,971,800	214,400	792,800	632,300	659,500	703,600	739,000	597,500	311,400	169,200	152,200
Black	345,500	15,600	66,400	44,600	48,700	50,600	49,900	34,700	20,700	9,700	4,800
Hispanic	263,200	16,200	65,100	39,000	39,400	38,700	28,100	16,800	10,300	6,400	3,300
Asian/Pacific Islander	379,000	26,800	83,000	48,400	45,300	52,300	41,200	42,600	24,800	11,600	3,000
Other	22,800	600	5,900	2,800	2,200	2,700	3,500	3,000	1,300	600	S
Sciences	4,581,400	235,900	833,500	591,900	565,300	616,000	698,800	539,600	275,000	126,700	98,700
Male	2,560,000	88,600	392,000	324,200	309,000	350,800	420,700	343,000	176,400	87,500	67,700
Female	2,021,400	147,300	441,500	267,700	256,300	265,200	278,200	196,500	98,600	39,200	31,100
White	3,808,700	186,100	655,900	489,800	468,400	512,800	599,400	463,700	233,000	108,600	91,100
Black	301,800	14,300	57,600	38,300	41,100	41,000	46,500	30,900	19,200	8,500	4,400
Hispanic	204,100	14,400	55,100	29,900	28,000	26,500	23,100	13,500	8,300	4,200	1,300
Asian/Pacific Islander	247,900	20,600	59,600	31,900	26,200	33,600	27,000	29,000	13,300	4,900	1,800
Other	18,800	600	5,300	2,200	1,600	2,000	2,700	2,500	1,200	500	S
Computer and math sciences	751,800	23,600	94,800	119,800	149,800	113,000	100,500	84,800	41,000	17,200	7,100
Male	498,300	15,500	62,300	80,800	95,500	74,900	68,000	57,900	26,300	12,200	4,900
Female	253,500	8,100	32,600	39,000	54,400	38,100	32,500	26,900	14,700	5,000	2,200
White	609,100	18,100	71,800	93,400	118,900	90,200	85,500	71,500	37,300	15,700	6,700
Black	49,800	1,600	8,100	10,100	11,100	6,300	5,700	4,200	1,300	1,200	S
Hispanic	28,800	1,000	4,500	5,600	7,600	5,400	1,900	1,900	S	S	S
Asian/Pacific Islander	60,900	2,900	10,200	9,900	11,700	10,700	6,800	6,800	1,600	S	S
Other	3,200	S	300	700	500	S	600	500	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-36.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1999

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Life and related sciences	966,000	56,800	185,300	106,700	109,400	152,700	154,400	107,400	52,800	22,900	17,600
Male	547,100	20,100	90,100	56,700	58,000	89,500	93,300	75,700	33,900	16,900	12,900
Female	418,900	36,600	95,200	50,000	51,400	63,200	61,100	31,700	18,900	6,000	4,700
White	815,100	44,600	150,200	86,800	94,400	129,200	134,600	94,800	46,200	18,500	15,800
Black	49,300	3,500	8,100	5,500	6,800	9,400	8,500	3,600	1,800	S	S
Hispanic	40,300	3,200	10,600	5,900	4,200	6,300	5,300	1,800	1,300	1,600	S
Asian/Pacific Islander	57,400	5,400	15,100	8,100	3,600	7,600	5,800	6,600	3,500	1,500	S
Other	3,900	S	1,300	600	S	300	S	S	S	S	S
Physical and related sciences	390,500	13,700	55,300	39,200	51,700	61,900	56,000	41,500	30,800	23,900	16,500
Male	294,000	7,600	34,800	26,800	41,700	46,000	45,600	31,100	25,900	19,800	14,700
Female	96,500	6,100	20,500	12,400	10,100	16,000	10,400	10,300	4,900	4,200	1,800
White	333,900	11,700	46,000	33,000	44,900	54,700	48,200	33,700	25,500	21,000	15,100
Black	17,900	600	2,400	2,300	2,200	1,800	2,200	2,600	1,700	1,400	S
Hispanic	13,100	600	2,400	1,300	2,400	1,800	1,700	800	1,100	S	S
Asian/Pacific Islander	23,900	700	4,200	2,400	2,100	3,300	3,400	4,000	2,300	1,100	S
Other	1,800	S	300	S	S	S	S	S	S	S	S
Social and related sciences	2,473,100	141,800	498,000	326,200	254,300	288,300	387,900	305,900	150,400	62,600	57,500
Male	1,220,600	45,400	204,900	159,900	113,800	140,400	213,800	178,300	90,300	38,600	35,100
Female	1,252,600	96,500	293,200	166,400	140,500	147,900	174,100	127,600	60,100	24,000	22,300
White	2,050,700	111,700	388,000	276,500	210,100	238,700	331,100	263,800	124,000	53,400	53,400
Black	184,800	8,600	39,000	20,300	21,000	23,600	30,100	20,500	14,500	4,800	2,400
Hispanic	121,900	9,700	37,600	17,100	13,800	13,000	14,100	9,000	5,200	1,900	S
Asian/Pacific Islander	105,800	11,500	30,100	11,500	8,800	12,000	11,000	11,700	5,900	2,200	S
Other	9,900	S	3,400	700	600	900	1,600	1,000	800	S	S
Engineers	1,401,000	37,700	179,800	175,100	229,800	231,800	162,800	155,100	93,400	70,700	64,800
Male	1,267,200	28,400	146,200	152,000	200,500	208,500	155,700	150,900	91,000	69,300	64,500
Female	133,800	9,300	33,500	23,000	29,300	23,300	7,100	4,200	2,400	1,400	S
White	1,163,100	28,300	136,900	142,500	191,100	190,700	139,600	133,800	78,500	60,600	61,200
Black	43,700	1,300	8,800	6,300	7,600	9,500	3,300	3,900	1,500	1,200	S
Hispanic	59,000	1,800	10,000	9,100	11,400	12,200	5,000	3,400	2,000	2,200	2,000
Asian/Pacific Islander	131,100	6,300	23,400	16,500	19,000	18,700	14,200	13,600	11,400	6,600	1,200
Other	5,100	S	700	600	600	700	700	S	S	S	S
Master's											
S&E degree fields	1,517,400	3,500	118,300	176,200	195,600	225,200	248,000	247,300	171,900	82,100	49,300
Male	1,004,100	1,600	69,300	117,200	131,300	140,400	155,500	164,200	124,700	61,600	38,300
Female	513,300	1,900	49,000	59,000	64,300	84,800	92,600	83,100	47,200	20,500	11,000
White	1,195,900	2,100	81,300	121,200	144,900	178,800	203,200	208,700	145,300	68,600	41,700
Black	69,500	S	5,600	7,200	6,700	10,000	13,300	11,500	8,300	3,700	3,000
Hispanic	49,000	200	4,600	7,900	9,100	8,100	7,700	4,600	3,300	2,100	1,400
Asian/Pacific Islander	198,000	1,100	26,000	39,300	33,600	27,500	23,100	22,200	14,900	7,200	3,100
Other	5,100	S	700	600	1,200	700	800	S	S	500	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-36.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1999

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Sciences	1,058,200	2,200	79,000	110,100	116,200	150,300	188,000	191,200	129,000	57,300	35,000
Male	591,000	800	37,300	60,700	61,800	76,800	99,300	109,800	83,200	37,000	24,300
Female	467,200	1,400	41,700	49,400	54,400	73,400	88,700	81,500	45,900	20,200	10,700
White	858,400	1,400	58,100	80,600	88,000	121,400	154,900	164,200	111,600	48,400	29,900
Black	60,500	S	4,500	5,000	5,100	8,200	12,600	10,800	7,700	3,600	2,800
Hispanic	32,600	S	3,500	5,000	5,100	4,600	5,900	4,000	1,900	1,400	1,100
Asian/Pacific Islander	102,400	700	12,300	18,900	17,000	15,500	13,800	12,000	7,600	3,400	1,200
Other	4,300	S	600	500	900	600	800	S	S	400	S
Computer and math sciences	266,400	500	19,200	32,100	39,200	45,500	41,600	42,000	27,900	13,600	4,700
Male	185,000	400	13,600	22,700	27,200	30,400	26,200	29,500	20,600	11,200	3,200
Female	81,400	S	5,600	9,400	12,100	15,100	15,400	12,500	7,300	2,400	1,500
White	194,300	300	10,000	17,100	27,000	32,200	32,600	35,700	24,000	11,400	3,900
Black	10,900	S	800	1,500	1,600	1,600	1,300	1,600	1,500	800	S
Hispanic	4,900	S	200	800	900	700	1,200	S	S	S	S
Asian/Pacific Islander	55,200	S	7,800	12,700	9,500	10,700	6,400	4,400	2,200	S	S
Other	1,100	S	S	S	S	S	S	S	S	S	S
Life and related sciences	166,900	700	10,000	16,800	21,700	26,300	29,900	27,400	22,500	8,700	2,800
Male	93,000	S	4,500	8,800	9,600	11,900	16,900	17,300	14,800	6,500	2,500
Female	73,900	500	5,400	8,000	12,200	14,400	13,100	10,100	7,800	2,200	S
White	138,500	S	7,700	14,100	16,900	23,900	24,700	22,200	19,800	6,800	2,100
Black	7,800	S	500	500	800	700	1,800	1,500	1,100	S	S
Hispanic	4,300	S	500	500	800	300	1,000	800	S	S	S
Asian/Pacific Islander	15,500	S	1,300	1,500	2,800	1,400	2,100	3,000	1,600	1,100	S
Other	800	S	S	S	400	S	S	S	S	S	S
Physical and related sciences	115,300	200	7,900	10,600	14,000	18,400	19,500	16,000	17,300	5,200	6,300
Male	86,300	S	5,200	7,600	9,300	13,100	14,600	12,300	15,000	3,600	5,400
Female	29,000	S	2,700	2,900	4,700	5,300	4,900	3,700	2,300	1,600	S
White	95,700	S	6,300	8,000	11,500	15,300	15,800	13,700	14,600	4,800	5,600
Black	3,300	S	200	200	300	200	700	S	S	S	S
Hispanic	3,400	S	400	400	400	800	800	S	S	S	S
Asian/Pacific Islander	12,400	S	1,100	1,900	1,700	1,900	2,100	1,500	1,800	S	S
Other	500	S	S	S	S	S	S	S	S	S	S
Social and related sciences	509,700	900	41,900	50,600	41,200	60,100	96,900	105,800	61,300	29,800	21,200
Male	226,800	S	14,000	21,500	15,700	21,500	41,600	50,700	32,900	15,700	13,100
Female	282,900	800	27,900	29,100	25,500	38,600	55,300	55,100	28,400	14,100	8,000
White	429,900	700	34,200	41,500	32,600	50,000	81,700	92,500	53,100	25,400	18,200
Black	38,400	S	3,100	2,800	2,400	5,600	8,800	7,200	4,600	2,100	1,800
Hispanic	20,000	S	2,400	3,300	3,100	2,800	2,800	2,700	1,400	700	700
Asian/Pacific Islander	19,400	S	2,100	2,800	2,900	1,500	3,100	3,100	2,000	1,400	S
Other	2,000	S	S	300	S	300	400	S	S	S	S
Engineers	459,200	1,300	39,300	66,100	79,400	74,900	60,100	56,100	42,900	24,800	14,300
Male	413,100	800	32,000	56,500	69,500	63,500	56,100	54,500	41,600	24,600	14,000
Female	46,100	500	7,400	9,600	9,900	11,300	3,900	1,600	1,300	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-36.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1999

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
White	337,500	700	23,200	40,600	56,900	57,400	48,300	44,600	33,700	20,300	11,800
Black	9,000	S	1,100	2,200	1,600	1,800	700	700	600	S	S
Hispanic	16,400	100	1,200	2,900	4,000	3,500	1,800	600	1,400	600	S
Asian/Pacific Islander	95,500	400	13,700	20,400	16,600	12,000	9,300	10,200	7,300	3,800	1,800
Other	800	S	S	100	300	S	S	S	S	S	S
Doctorate											
S&E degree fields	623,400	S	10,100	54,200	85,000	96,900	99,900	101,400	91,300	50,500	34,200
Male	472,600	S	5,800	36,300	60,700	69,500	73,200	77,200	76,200	43,900	29,800
Female	150,700	S	4,200	17,900	24,300	27,500	26,600	24,200	15,100	6,600	4,400
White	491,900	S	7,700	37,700	57,900	72,100	81,500	85,200	78,700	41,900	29,200
Black	14,600	S	100	1,300	2,000	2,700	2,400	2,700	1,900	800	800
Hispanic	17,600	S	300	1,800	3,000	3,000	2,700	2,100	2,000	1,600	1,100
Asian/Pacific Islander	96,900	S	2,000	13,200	21,900	18,700	13,000	10,900	8,300	5,900	3,000
Other	2,400	S	S	200	300	500	300	400	400	200	100
Sciences	515,900	S	7,500	40,600	66,400	79,900	86,900	88,200	76,600	40,700	29,200
Male	372,900	S	3,800	24,800	44,000	53,800	61,000	64,500	61,900	34,200	24,900
Female	143,000	S	3,600	15,800	22,400	26,100	25,900	23,700	14,700	6,500	4,400
White	421,600	S	6,400	29,800	47,500	62,200	73,100	76,300	67,200	34,200	24,800
Black	12,800	S	100	1,000	1,600	2,400	2,200	2,400	1,700	700	800
Hispanic	14,800	S	100	1,400	2,400	2,600	2,400	1,800	1,800	1,300	1,000
Asian/Pacific Islander	64,600	S	1,000	8,100	14,600	12,300	8,900	7,300	5,600	4,300	2,500
Other	2,200	S	S	200	200	500	200	400	400	200	100
Computer and math sciences	40,800	S	1,500	3,700	6,000	6,600	6,200	6,300	6,200	2,900	1,300
Male	34,700	S	1,100	3,100	4,800	5,500	5,500	5,400	5,500	2,700	1,200
Female	6,100	S	400	700	1,200	1,100	700	1,000	600	300	100
White	31,200	S	1,200	2,500	3,800	4,600	5,000	5,300	5,400	2,500	1,000
Black	600	S	S	S	S	100	100	100	100	S	100
Hispanic	1,000	S	S	100	100	200	200	200	100	S	S
Asian/Pacific Islander	7,700	S	300	1,100	2,000	1,500	900	800	600	300	200
Other	300	S	S	S	S	S	S	S	S	S	S
Life and related sciences	178,400	S	2,500	15,700	24,500	29,800	31,900	28,700	24,900	11,700	8,800
Male	123,600	S	1,100	9,200	15,500	19,500	21,700	20,400	19,200	9,800	7,200
Female	54,800	S	1,400	6,500	9,000	10,200	10,200	8,300	5,600	1,900	1,600
White	140,700	S	2,100	11,200	17,100	22,700	26,200	24,400	21,100	8,800	7,100
Black	4,600	S	S	300	500	900	700	1,000	600	300	200
Hispanic	6,200	S	S	500	1,000	1,100	1,000	500	600	700	700
Asian/Pacific Islander	26,300	S	300	3,700	5,700	5,000	3,800	2,600	2,500	1,900	800
Other	600	S	S	100	100	100	100	200	S	100	S
Physical and related sciences	128,500	S	2,300	10,300	18,900	20,000	17,800	19,000	19,300	12,600	8,300
Male	111,600	S	1,500	7,700	15,000	16,400	15,700	17,400	18,200	11,700	8,100
Female	16,800	S	800	2,500	3,900	3,600	2,100	1,600	1,100	900	300
White	102,000	S	1,900	7,600	12,300	15,100	14,800	15,600	16,800	10,600	7,300

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-36.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1999

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Black	1,600	S	S	200	400	300	200	200	200	100	100
Hispanic	2,500	S	S	200	600	400	200	300	500	200	S
Asian/Pacific Islander	22,100	S	300	2,300	5,500	4,200	2,600	2,800	1,900	1,600	800
Other	300	S	S	S	S	S	S	100	100	S	S
Social and related sciences	168,300	S	1,200	10,800	17,000	23,500	31,000	34,200	26,300	13,500	10,800
Male	103,000	S	200	4,700	8,800	12,400	18,200	21,400	18,900	10,100	8,300
Female	65,300	S	1,000	6,100	8,200	11,100	12,800	12,800	7,400	3,400	2,500
White	147,600	S	1,100	8,600	14,300	19,700	27,100	31,100	24,000	12,300	9,400
Black	6,100	S	S	500	700	1,100	1,200	1,000	900	300	400
Hispanic	5,100	S	S	600	600	900	1,000	800	600	300	300
Asian/Pacific Islander	8,600	S	100	1,100	1,300	1,700	1,600	1,100	600	500	600
Other	900	S	S	100	100	100	100	100	200	100	100
Engineers	107,400	S	2,600	13,600	18,600	17,100	13,000	13,200	14,700	9,800	5,000
Male	99,700	S	2,000	11,500	16,700	15,700	12,200	12,700	14,400	9,700	4,900
Female	7,700	S	600	2,100	1,900	1,400	800	500	400	100	S
White	70,300	S	1,400	7,800	10,400	9,900	8,300	8,900	11,500	7,700	4,300
Black	1,800	S	S	300	300	300	200	300	200	100	S
Hispanic	2,800	S	200	400	600	400	300	300	300	400	S
Asian/Pacific Islander	32,300	S	1,000	5,100	7,300	6,400	4,100	3,600	2,800	1,600	600
Other	200	S	S	S	S	S	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

See figure 3-17 in Volume 1.

Appendix table 3-37.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1993

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
		All degree levels ^a									
S&E degree fields	7,308,300	286,100	931,300	1,115,300	1,169,300	1,217,400	1,003,700	655,000	430,700	272,500	227,000
Male	5,011,800	143,600	562,600	725,300	773,500	833,800	717,200	495,000	349,600	221,600	189,700
Female	2,296,500	142,500	368,700	390,000	395,800	383,600	286,600	160,000	81,100	50,900	37,300
White	6,118,800	241,900	756,000	897,500	958,000	1,020,100	862,700	559,600	371,000	242,400	209,700
Black	374,500	15,500	57,200	63,700	65,300	66,700	45,200	29,500	15,700	9,700	5,900
Hispanic	238,800	8,900	39,200	49,400	44,400	36,600	23,400	15,000	11,400	6,100	4,300
Asian/Pacific Islander	553,900	19,200	76,700	101,400	97,300	90,400	69,000	48,700	31,000	13,700	6,700
Other	22,300	600	2,100	3,300	4,300	3,700	3,400	2,200	1,600	600	400
Sciences	5,403,200	242,300	695,400	775,400	858,000	973,200	781,800	482,300	281,800	176,000	137,100
Male	3,256,600	107,100	363,500	430,100	495,400	600,600	504,300	325,500	203,200	126,000	100,900
Female	2,146,700	135,200	331,900	345,300	362,600	372,600	277,500	156,800	78,600	50,000	36,200
White	4,543,900	205,700	569,900	626,600	708,200	819,600	680,300	413,100	242,800	153,900	123,800
Black	329,900	14,400	47,700	53,000	55,700	62,000	40,900	27,400	14,400	8,900	5,500
Hispanic	173,700	7,700	29,300	32,400	30,500	29,700	17,800	11,500	7,200	4,200	3,400
Asian/Pacific Islander	337,600	13,900	46,700	60,600	60,300	59,000	39,900	28,300	16,400	8,400	4,200
Other	18,100	600	1,800	2,700	3,300	2,900	3,000	2,000	900	600	300
Computer and math sciences	948,100	29,600	151,200	202,000	152,900	138,900	123,800	82,000	40,400	16,600	10,800
Male	636,900	15,200	95,600	131,600	104,400	90,100	87,500	59,400	31,100	13,200	8,900
Female	311,200	14,400	55,600	70,400	48,500	48,700	36,300	22,700	9,200	3,400	2,000
White	766,500	24,000	115,700	153,700	118,600	113,700	108,400	72,800	35,500	14,500	9,600
Black	56,700	2,400	13,200	13,800	8,700	7,000	5,000	3,300	1,700	900	600
Hispanic	26,000	700	5,800	7,100	4,100	3,400	2,400	1,300	600	100	500
Asian/Pacific Islander	95,900	2,500	16,000	26,400	21,000	14,300	7,700	4,500	2,400	1,000	S
Other	3,000	S	500	1,000	500	400	300	S	100	S	S
Life and related sciences	1,103,400	41,300	114,000	152,600	217,300	209,100	150,900	97,200	56,800	33,400	30,700
Male	674,900	19,000	55,100	77,300	127,800	133,000	106,900	64,700	42,500	24,200	24,400
Female	428,500	22,300	58,900	75,300	89,500	76,100	44,000	32,600	14,300	9,300	6,200
White	936,700	34,300	93,000	126,200	187,100	179,900	131,200	82,100	48,100	27,000	27,700
Black	49,900	2,600	5,200	8,800	8,800	8,600	5,500	4,700	2,600	2,300	1,000
Hispanic	36,800	1,500	5,200	6,100	7,500	7,100	2,600	2,500	1,700	1,600	1,000
Asian/Pacific Islander	76,300	2,800	10,200	11,000	13,100	13,000	10,900	7,700	4,200	2,500	1,000
Other	3,700	S	300	500	700	600	700	300	200	S	S
Physical and related sciences	623,100	15,600	56,800	88,500	96,500	97,400	80,700	72,400	50,200	36,700	28,300
Male	499,300	10,100	39,100	65,600	76,000	80,000	65,800	62,100	44,700	32,400	23,600
Female	123,800	5,500	17,700	22,900	20,500	17,400	14,900	10,300	5,600	4,300	4,700
White	525,000	13,600	45,900	73,300	80,000	80,300	67,700	61,700	43,600	33,500	25,400
Black	21,400	600	2,500	3,400	3,300	3,300	3,100	2,200	1,200	600	1,300
Hispanic	16,000	300	2,100	2,900	2,900	2,200	1,700	1,500	1,200	400	800
Asian/Pacific Islander	58,200	1,100	5,900	8,700	9,700	11,400	7,900	6,800	4,100	1,900	800
Other	2,400	S	300	300	600	200	300	200	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-37.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1993

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Social and related sciences	2,728,600	155,700	373,400	332,300	391,400	527,800	426,400	230,600	134,400	89,300	67,300
Male	1,445,500	62,800	173,700	155,600	187,300	297,500	244,100	139,400	85,000	56,300	44,000
Female	1,283,100	92,900	199,700	176,600	204,100	230,300	182,400	91,300	49,400	33,000	23,300
White	2,315,700	133,700	315,300	273,400	322,500	445,700	372,900	196,600	115,500	78,800	61,200
Black	201,900	8,800	26,700	27,100	34,900	43,100	27,300	17,200	8,900	5,200	2,700
Hispanic	94,900	5,200	16,100	16,300	16,000	17,000	11,200	6,100	3,800	2,100	1,100
Asian/Pacific Islander	107,100	7,500	14,700	14,500	16,500	20,300	13,400	9,400	5,700	2,900	2,200
Other	9,100	S	600	1,000	1,600	1,700	1,600	1,300	400	300	200
Engineers	1,905,100	43,800	236,000	339,900	311,300	244,300	221,900	172,700	148,900	96,500	89,900
Male	1,755,300	36,400	199,200	295,200	278,000	233,300	212,900	169,500	146,300	95,600	88,800
Female	149,800	7,400	36,800	44,700	33,200	11,000	9,000	3,200	2,600	900	1,100
White	1,575,000	36,100	186,100	270,900	249,800	200,500	182,400	146,500	128,100	88,500	85,900
Black	44,600	1,100	9,600	10,700	9,600	4,700	4,300	2,100	1,300	800	400
Hispanic	65,100	1,200	10,000	17,000	14,000	6,900	5,600	3,600	4,200	1,900	900
Asian/Pacific Islander	216,300	5,300	30,000	40,700	37,000	31,400	29,100	20,400	14,600	5,300	2,500
Other	4,100	S	400	600	900	800	400	200	700	S	S
Bachelor's											
S&E degree fields	5,394,700	283,200	826,300	879,900	862,900	866,400	661,800	392,000	275,500	185,800	161,000
Male	3,643,600	141,600	492,200	563,700	571,600	598,500	473,800	292,700	223,900	151,300	134,200
Female	1,751,100	141,500	334,100	316,200	291,200	267,900	187,900	99,300	51,600	34,500	26,800
White	4,564,900	239,500	678,800	727,100	719,500	735,300	571,600	334,200	240,300	168,800	149,700
Black	305,500	15,500	53,700	56,300	54,300	52,300	32,500	20,300	10,700	5,400	4,300
Hispanic	185,900	8,800	35,800	39,800	34,400	27,300	16,000	9,800	7,400	3,500	3,100
Asian/Pacific Islander	321,700	18,700	56,100	54,000	51,500	48,800	38,800	26,300	16,100	7,600	3,800
Other	16,800	600	1,900	2,700	3,200	2,700	2,800	1,300	1,100	400	S
Sciences	3,979,500	240,800	632,000	619,500	635,300	699,900	506,800	277,700	171,000	108,900	87,700
Male	2,341,000	106,400	328,300	337,700	366,500	438,100	325,800	180,100	121,400	75,200	61,600
Female	1,638,600	134,400	303,700	281,800	268,800	261,800	180,900	97,600	49,700	33,700	26,200
White	3,359,800	204,500	520,900	510,000	530,800	594,100	439,500	234,900	148,900	97,400	78,900
Black	268,200	14,400	45,100	47,200	46,100	48,600	29,500	18,800	9,600	4,800	4,000
Hispanic	135,100	7,700	27,100	26,600	23,300	22,400	11,800	7,500	4,400	2,000	2,400
Asian/Pacific Islander	202,600	13,600	37,300	33,300	32,500	32,800	23,500	15,300	7,800	4,200	2,300
Other	13,800	600	1,600	2,400	2,500	2,000	2,500	1,200	500	400	S
Computer and math sciences	687,500	29,500	134,300	161,700	107,400	91,100	78,100	46,600	22,300	10,200	6,100
Male	446,800	15,100	83,800	102,100	71,300	60,100	53,600	31,700	15,800	8,100	5,300
Female	240,600	14,400	50,500	59,600	36,100	31,000	24,500	14,900	6,600	2,100	800
White	563,200	23,900	104,000	127,100	86,400	76,700	68,500	41,600	20,500	9,300	5,100
Black	47,600	2,400	12,500	12,200	7,600	5,100	3,500	2,400	800	S	S
Hispanic	21,600	700	5,400	6,500	3,400	2,300	1,800	900	S	S	S
Asian/Pacific Islander	52,800	2,500	11,900	15,000	9,900	6,600	3,900	1,700	800	S	S
Other	2,300	S	500	900	S	400	300	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-37.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1993

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Life and related sciences	797,200	41,200	101,700	118,100	165,500	148,600	94,600	52,400	33,000	20,900	21,100
Male	474,200	19,000	49,100	60,300	97,200	94,900	67,500	31,900	23,700	14,000	16,500
Female	323,000	22,100	52,600	57,800	68,200	53,800	27,200	20,500	9,300	6,900	4,600
White	685,700	34,300	83,500	99,700	145,100	130,500	83,600	43,700	29,300	16,700	19,300
Black	39,800	2,600	4,600	7,900	7,400	6,200	3,600	3,300	1,800	1,600	900
Hispanic	27,200	1,500	5,000	4,800	5,700	5,200	1,300	1,700	500	900	S
Asian/Pacific Islander	41,800	2,600	8,400	5,400	6,500	6,500	5,600	3,600	1,200	1,700	400
Other	2,700	S	300	300	600	200	S	S	S	S	S
Physical and related sciences	388,400	15,400	46,800	58,000	61,200	58,600	44,400	35,400	30,500	21,300	16,800
Male	301,900	9,900	31,600	43,100	48,800	47,100	34,900	29,100	26,400	18,000	12,800
Female	86,500	5,500	15,200	14,900	12,300	11,500	9,500	6,300	4,200	3,200	4,000
White	331,100	13,400	38,200	50,200	52,400	49,600	36,400	29,900	26,400	20,000	14,700
Black	16,600	600	2,300	2,900	2,500	2,300	1,400	1,000	S	1,100	
Hispanic	10,800	300	1,800	1,900	1,800	1,300	900	900	1,000	S	700
Asian/Pacific Islander	28,000	1,100	4,200	2,700	4,000	5,100	4,600	3,100	2,200	800	S
Other	1,800	S	S	S	500	S	S	S	S	S	S
Social and related sciences	2,106,500	154,700	349,200	281,700	301,200	401,600	289,600	143,200	85,200	56,500	43,600
Male	1,118,100	62,300	163,800	132,200	149,100	236,100	169,900	87,300	55,500	35,000	27,000
Female	988,500	92,400	185,400	149,500	152,100	165,500	119,800	55,900	29,700	21,500	16,700
White	1,779,800	132,800	295,200	233,000	246,800	337,300	251,000	119,800	72,700	51,300	39,800
Black	164,200	8,800	25,700	24,200	28,600	35,000	20,000	11,800	6,000	2,500	1,500
Hispanic	75,500	5,200	14,800	13,400	12,400	13,500	7,800	4,000	2,600	1,000	800
Asian/Pacific Islander	80,000	7,400	12,900	10,200	12,200	14,600	9,400	6,800	3,600	1,500	1,400
Other	7,000	S	600	900	1,200	1,200	1,300	900	S	S	S
Engineers	1,415,100	42,400	194,300	260,500	227,500	166,500	155,000	114,300	104,500	76,900	73,300
Male	1,302,600	35,200	163,900	226,100	205,100	160,400	148,000	112,600	102,500	76,100	72,600
Female	112,600	7,200	30,400	34,400	22,400	6,100	7,000	1,700	2,000	800	S
White	1,205,000	35,000	157,900	217,100	188,700	141,200	132,100	99,300	91,500	71,400	70,800
Black	37,300	1,100	8,600	9,100	8,200	3,700	3,100	1,500	1,100	600	S
Hispanic	50,700	1,100	8,700	13,300	11,000	4,900	4,100	2,300	3,000	1,500	700
Asian/Pacific Islander	119,100	5,000	18,800	20,700	19,000	16,000	15,300	11,000	8,300	3,400	1,400
Other	3,000	S	300	300	600	700	300	S	S	S	S
Master's											
S&E degree fields	1,368,900	2,900	97,800	184,800	222,700	253,900	241,400	171,300	101,000	53,700	39,500
Male	936,800	1,900	65,600	125,800	140,200	161,900	166,000	124,000	78,400	41,000	31,900
Female	432,100	1,000	32,200	59,000	82,400	92,000	75,300	47,300	22,500	12,700	7,500
White	1,107,700	2,400	72,200	133,300	174,900	206,100	205,100	146,900	85,300	45,400	36,300
Black	57,200	S	3,300	6,400	9,100	11,800	10,000	7,700	4,200	3,500	1,300
Hispanic	38,300	100	3,100	7,900	7,500	6,600	5,500	3,200	2,500	1,600	400
Asian/Pacific Islander	162,100	500	19,100	36,700	30,400	28,600	20,500	13,200	8,600	3,100	1,300
Other	3,600	S	200	500	900	800	S	400	400	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-37.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1993

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Sciences	965,100	1,500	58,300	115,400	152,900	188,400	188,300	127,700	67,200	39,100	26,400
Male	566,100	700	32,100	65,500	80,300	100,600	114,500	81,600	45,200	26,500	19,200
Female	399,000	800	26,200	49,900	72,600	87,900	73,800	46,100	22,000	12,600	7,200
White	798,900	1,200	45,300	85,800	122,200	154,700	164,600	111,200	57,100	32,600	24,200
Black	51,100	S	2,300	5,000	7,800	11,100	9,200	7,300	4,000	3,300	1,200
Hispanic	25,900	S	2,100	4,400	4,900	4,900	4,200	2,200	1,700	1,200	S
Asian/Pacific Islander	86,500	200	8,500	19,900	17,400	17,000	10,100	6,700	4,100	1,900	600
Other	2,700	S	S	300	700	700	S	300	300	S	S
Computer and math sciences	227,500	100	16,100	36,400	40,300	42,600	39,500	29,200	14,900	4,900	3,700
Male	161,000	100	11,200	26,200	28,600	25,600	28,700	21,900	12,400	3,700	2,600
Female	66,500	S	4,800	10,300	11,700	16,900	10,800	7,300	2,400	1,200	1,100
White	177,100	100	11,200	24,100	28,600	32,800	34,700	25,900	12,200	4,100	3,400
Black	8,700	S	800	1,500	1,100	1,900	1,400	800	900	300	S
Hispanic	3,600	S	400	600	500	900	400	400	S	S	S
Asian/Pacific Islander	37,400	S	3,700	10,100	9,700	7,000	3,000	2,000	1,300	500	S
Other	600	S	S	S	S	S	S	S	S	S	S
Life and related sciences	155,000	S	10,600	20,900	24,700	30,600	28,900	21,400	10,500	4,100	3,000
Male	89,200	S	5,100	8,700	12,700	16,700	19,300	13,800	7,600	2,900	2,400
Female	65,800	S	5,500	12,300	12,100	13,900	9,600	7,600	2,900	1,200	600
White	128,200	S	8,300	16,500	20,600	25,000	24,200	18,700	8,900	3,300	2,700
Black	7,000	S	500	700	900	1,800	1,100	1,000	500	S	S
Hispanic	3,900	S	100	600	800	800	600	S	400	S	S
Asian/Pacific Islander	15,400	S	1,600	3,000	2,400	2,800	2,900	1,400	700	S	S
Other	600	S	S	S	S	200	S	S	S	S	S
Physical and related sciences	115,800	200	8,700	17,300	17,600	20,200	17,600	16,500	6,200	6,600	4,800
Male	91,000	200	6,500	12,100	12,500	16,300	13,900	13,700	5,500	5,900	4,500
Female	24,800	S	2,200	5,200	5,100	3,800	3,700	2,800	700	700	S
White	96,300	200	6,800	13,300	14,000	16,300	15,400	14,100	5,600	5,900	4,600
Black	3,300	S	200	200	600	600	600	600	S	S	S
Hispanic	3,000	S	200	700	700	600	500	S	S	S	S
Asian/Pacific Islander	12,800	S	1,400	3,100	2,200	2,700	1,100	1,600	400	S	S
Other	300	S	S	S	S	S	S	S	S	S	S
Social and related sciences	466,800	1,000	23,000	40,700	70,200	95,100	102,300	60,600	35,600	23,500	14,900
Male	224,900	400	9,300	18,500	26,600	41,900	52,600	32,200	19,600	14,000	9,700
Female	241,900	500	13,600	22,200	43,700	53,200	49,700	28,400	15,900	9,400	5,200
White	397,300	900	19,100	31,900	58,900	80,500	90,300	52,500	30,400	19,400	13,400
Black	32,000	S	800	2,600	5,200	6,900	6,200	4,800	2,400	2,200	1,000
Hispanic	15,400	S	1,300	2,500	2,800	2,600	2,700	1,500	1,000	800	S
Asian/Pacific Islander	20,800	S	1,800	3,700	3,000	4,600	3,000	1,700	1,600	1,000	S
Other	1,300	S	S	S	300	400	S	S	S	S	S
Engineers	403,900	1,400	39,500	69,400	69,800	65,500	53,100	43,600	33,800	14,600	13,100
Male	370,700	1,200	33,500	60,300	59,900	61,300	51,500	42,400	33,300	14,500	12,700
Female	33,200	200	6,000	9,200	9,900	4,100	1,600	1,200	500	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-37.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1993

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
White	308,800	1,100	26,900	47,400	52,700	51,400	40,500	35,700	28,200	12,800	12,100
Black	6,100	S	1,000	1,500	1,300	800	900	400	S	S	S
Hispanic	12,500	S	1,000	3,500	2,600	1,600	1,300	1,000	900	400	S
Asian/Pacific Islander	75,600	300	10,600	16,800	13,000	11,600	10,400	6,500	4,500	1,300	700
Other	900	S	S	200	S	S	S	S	S	S	S
Doctorate											
S&E degree fields	538,800	S	7,200	50,200	83,400	95,400	98,800	91,000	53,600	32,800	26,300
Male	428,400	S	4,800	35,700	61,400	72,500	76,400	78,000	47,100	29,100	23,400
Female	110,400	S	2,400	14,500	22,000	22,900	22,400	13,000	6,600	3,700	2,900
White	441,100	S	5,100	36,900	63,300	77,000	84,400	77,900	44,800	28,200	23,500
Black	11,400	S	300	1,000	1,900	2,500	2,500	1,400	800	600	400
Hispanic	14,400	S	400	1,600	2,600	2,600	1,900	2,000	1,500	1,000	700
Asian/Pacific Islander	70,100	S	1,400	10,700	15,400	12,900	9,600	9,200	6,400	2,900	1,600
Other	1,800	S	100	100	200	200	400	500	200	200	100
Sciences	452,700	S	5,100	40,200	69,500	83,100	85,000	76,200	43,000	27,800	22,900
Male	346,400	S	3,100	26,800	48,400	60,900	63,100	63,500	36,600	24,100	20,000
Female	106,300	S	2,000	13,300	21,100	22,100	21,900	12,700	6,500	3,700	2,900
White	379,900	S	3,800	30,500	54,900	69,100	74,600	66,300	36,300	23,800	20,600
Black	10,300	S	300	800	1,800	2,300	2,100	1,300	800	600	400
Hispanic	12,400	S	100	1,400	2,300	2,300	1,700	1,800	1,200	900	700
Asian/Pacific Islander	48,400	S	900	7,500	10,400	9,100	6,200	6,400	4,600	2,300	1,200
Other	1,600	S	S	S	100	200	400	400	100	200	100
Computer and math sciences	33,200	S	900	3,900	5,200	5,200	6,200	6,200	3,100	1,500	1,000
Male	29,100	S	600	3,300	4,500	4,400	5,300	5,800	2,900	1,400	1,000
Female	4,100	S	200	600	700	800	900	400	200	100	100
White	26,200	S	500	2,400	3,600	4,200	5,300	5,300	2,800	1,100	1,000
Black	400	S	S	S	100	S	100	100	S	S	S
Hispanic	800	S	S	100	200	200	200	100	100	S	S
Asian/Pacific Islander	5,700	S	300	1,300	1,400	800	700	700	300	300	S
Other	100	S	S	S	S	S	S	S	S	S	S
Life and related sciences	151,200	S	1,700	13,500	27,100	29,900	27,400	23,400	13,300	8,400	6,600
Male	111,500	S	900	8,300	17,900	21,400	20,100	18,900	11,100	7,200	5,500
Female	39,700	S	800	5,200	9,200	8,500	7,300	4,500	2,100	1,100	1,000
White	122,900	S	1,300	10,000	21,400	24,400	23,400	19,700	10,000	6,900	5,700
Black	3,100	S	100	300	500	600	800	400	300	200	100
Hispanic	5,700	S	S	700	900	1,100	700	600	800	500	400
Asian/Pacific Islander	19,100	S	200	2,600	4,200	3,700	2,400	2,600	2,200	800	300
Other	400	S	S	S	S	100	100	S	S	S	S
Physical and related sciences	118,900	S	1,300	13,200	17,700	18,700	18,700	20,500	13,500	8,800	6,600
Male	106,400	S	1,000	10,400	14,700	16,600	17,000	19,300	12,800	8,500	6,300
Female	12,500	S	300	2,900	3,000	2,100	1,700	1,200	700	300	400
White	97,500	S	1,000	9,800	13,500	14,300	16,000	17,600	11,700	7,600	6,100

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-37.

Individuals in labor force with S&E highest degrees, by highest degree attained, field of highest degree, sex, race/ethnicity, and age: 1993

Field of degree, sex, and race/ethnicity	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Black	1,500	S	S	200	200	500	200	200	100	100	S
Hispanic	2,300	S	100	300	400	300	300	500	200	100	100
Asian/Pacific Islander	17,400	S	300	2,900	3,500	3,600	2,100	2,100	1,600	800	400
Other	300	S	S	S	S	S	S	100	S	S	S
Social and related sciences	149,400	S	1,200	9,600	19,600	29,300	32,700	26,100	13,100	9,100	8,600
Male	99,400	S	600	4,900	11,300	18,600	20,700	19,500	9,700	7,100	7,100
Female	50,000	S	700	4,700	8,200	10,700	12,000	6,600	3,400	2,100	1,500
White	133,400	S	1,000	8,200	16,400	26,200	30,000	23,700	11,900	8,100	7,800
Black	5,300	S	S	300	1,000	1,200	1,000	700	400	300	200
Hispanic	3,700	S	S	300	800	800	600	600	200	300	100
Asian/Pacific Islander	6,200	S	100	700	1,300	1,100	900	900	500	400	500
Other	800	S	S	S	100	100	200	300	100	100	S
Engineers	86,100	S	2,200	10,000	13,900	12,300	13,800	14,800	10,600	5,000	3,500
Male	82,000	S	1,800	8,800	13,000	11,600	13,300	14,500	10,500	5,000	3,400
Female	4,100	S	400	1,100	900	700	500	300	100	S	S
White	61,200	S	1,300	6,400	8,300	7,900	9,800	11,500	8,500	4,400	3,000
Black	1,200	S	S	100	200	200	400	200	S	S	S
Hispanic	1,900	S	200	200	300	300	200	200	300	100	S
Asian/Pacific Islander	21,600	S	600	3,200	5,000	3,800	3,400	2,800	1,800	600	400
Other	200	S	S	S	S	S	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability

*Includes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

Appendix table 3-38.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		All degree levels ^a						
S&E occupations	4,120,700	3,540,800	3,267,400	273,400	56,000	523,900	364,400	159,400
Male	3,126,200	2,705,000	2,570,200	134,800	40,900	380,300	325,000	55,400
Female	994,400	835,800	697,200	138,600	15,100	143,500	39,500	104,100
White	3,406,400	2,896,600	2,658,900	237,600	44,400	465,500	337,600	127,900
Black	135,100	121,600	113,300	8,400	3,300	10,200	6,000	4,200
Hispanic	135,800	120,900	111,400	9,500	2,200	12,700	6,100	6,600
Asian/Pacific Islander	430,300	390,500	373,400	17,100	6,100	33,800	14,100	19,700
Other	13,000	11,300	10,500	800	100	1,700	700	1,000
Scientists	2,464,500	2,170,500	1,949,400	221,100	30,200	263,800	146,100	117,700
Male	1,626,100	1,464,800	1,373,400	91,400	18,000	143,400	110,000	33,400
Female	838,400	705,800	576,000	129,700	12,200	120,500	36,100	84,300
White	2,025,100	1,774,200	1,580,400	193,800	23,600	227,300	132,000	95,300
Black	94,200	84,000	76,300	7,600	2,400	7,900	4,800	3,100
Hispanic	80,200	71,800	64,700	7,100	900	7,500	2,700	4,800
Asian/Pacific Islander	257,100	233,900	222,100	11,800	3,200	20,000	6,300	13,600
Other	7,900	6,700	5,900	800	100	1,200	300	900
Computer and math scientists	1,277,900	1,167,400	1,092,400	74,900	14,700	95,800	52,700	43,100
Male	913,700	850,600	816,400	34,200	10,800	52,300	38,900	13,300
Female	364,200	316,700	276,000	40,700	3,900	43,500	13,800	29,700
White	1,018,600	922,200	856,900	65,300	11,100	85,400	47,300	38,100
Black	55,600	51,400	48,900	2,500	1,700	2,600	1,500	1,100
Hispanic	39,800	37,600	35,200	2,400	S	2,100	1,400	700
Asian/Pacific Islander	161,000	153,600	148,800	4,700	1,900	5,500	2,400	3,100
Other	2,900	2,700	2,600	S	S	S	S	S
Life and related scientists	406,100	341,900	311,800	30,100	4,400	59,800	28,800	31,000
Male	251,000	217,500	204,000	13,400	2,100	31,500	22,400	9,100
Female	155,100	124,400	107,700	16,700	2,300	28,300	6,400	21,800
White	334,800	285,100	259,400	25,800	3,600	46,100	24,400	21,700
Black	9,200	6,600	5,700	900	S	2,600	1,300	1,200
Hispanic	13,400	10,900	9,600	1,400	100	2,400	800	1,600
Asian/Pacific Islander	46,700	37,700	35,700	1,900	600	8,400	2,300	6,100
Other	2,000	1,600	1,400	200	S	400	S	400
Physical and related scientists	360,600	297,900	272,000	25,900	5,800	57,000	39,300	17,700
Male	272,900	229,400	213,900	15,500	3,400	40,000	33,300	6,700
Female	87,700	68,400	58,100	10,400	2,400	17,000	6,000	10,900
White	306,900	252,500	229,300	23,200	4,200	50,200	37,000	13,200
Black	10,800	8,800	8,400	400	600	1,400	1,100	300
Hispanic	9,200	7,800	7,200	600	500	900	200	600
Asian/Pacific Islander	32,800	27,800	26,100	1,700	500	4,400	1,000	3,500
Other	1,000	900	900	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-38.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Social and related scientists	419,900	363,400	273,200	90,200	5,300	51,300	25,200	26,000
Male	188,500	167,300	139,000	28,300	1,700	19,600	15,400	4,200
Female	231,400	196,200	134,200	62,000	3,600	31,700	9,900	21,800
White	364,700	314,400	234,800	79,600	4,700	45,600	23,300	22,300
Black	18,600	17,200	13,200	3,900	100	1,300	900	400
Hispanic	17,800	15,500	12,700	2,800	200	2,100	300	1,800
Asian/Pacific Islander	16,700	14,800	11,400	3,400	S	1,700	700	1,000
Other	2,100	1,500	1,000	500	S	600	S	500
Engineers	1,656,200	1,370,300	1,318,000	52,300	25,800	260,000	218,300	41,700
Male	1,500,100	1,240,200	1,196,900	43,400	22,900	237,000	215,000	22,000
Female	156,000	130,000	121,200	8,900	2,900	23,100	3,300	19,800
White	1,381,300	1,122,400	1,078,500	43,800	20,800	238,200	205,600	32,600
Black	40,900	37,700	36,900	700	900	2,300	1,200	1,100
Hispanic	55,600	49,100	46,700	2,400	1,300	5,300	3,400	1,900
Asian/Pacific Islander	173,200	156,600	151,300	5,300	2,800	13,800	7,700	6,100
Other	5,100	4,600	4,600	S	S	500	400	S
Bachelor's								
S&E occupations	2,350,500	1,994,400	1,870,600	123,800	32,700	323,300	223,200	100,100
Male	1,831,300	1,564,700	1,496,100	68,700	25,000	241,500	206,800	34,700
Female	519,200	429,700	374,500	55,200	7,800	81,700	16,400	65,300
White	1,996,900	1,680,900	1,571,500	109,400	26,400	289,500	209,000	80,500
Black	82,600	73,900	71,100	2,800	2,500	6,200	3,500	2,800
Hispanic	83,800	74,800	69,800	5,000	1,200	7,700	3,300	4,500
Asian/Pacific Islander	179,300	158,300	152,000	6,300	2,600	18,400	6,900	11,500
Other	7,900	6,600	6,200	S	S	1,400	500	800
Scientists	1,228,500	1,087,100	997,300	89,800	16,200	125,200	54,000	71,200
Male	815,200	744,300	705,000	39,400	10,300	60,600	40,400	20,200
Female	413,300	342,800	292,300	50,500	5,900	64,600	13,600	51,000
White	1,027,000	908,100	828,300	79,800	12,800	106,000	48,500	57,600
Black	53,100	46,600	44,200	2,400	1,900	4,500	2,600	1,900
Hispanic	45,500	41,500	38,200	3,300	S	3,900	S	3,100
Asian/Pacific Islander	98,900	87,700	83,800	3,900	1,300	9,900	2,000	7,900
Other	4,000	3,100	2,700	S	S	900	S	800
Computer and math scientists	804,900	740,500	700,600	39,900	9,500	54,900	25,200	29,700
Male	572,600	538,900	522,100	16,800	7,100	26,700	19,000	7,700
Female	232,300	201,600	178,500	23,100	2,500	28,200	6,200	22,000
White	669,100	612,200	575,600	36,600	7,100	49,800	22,600	27,200
Black	37,700	34,200	33,700	500	1,600	1,900	1,100	800
Hispanic	28,000	27,000	25,600	1,400	S	900	S	400
Asian/Pacific Islander	68,400	65,400	64,000	1,400	S	2,200	900	1,300
Other	1,800	1,700	1,700	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-38.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Life and related scientists	166,500	135,500	120,400	15,100	1,700	29,200	8,400	20,900
Male	90,400	76,900	69,800	7,100	S	12,500	5,800	6,800
Female	76,000	58,600	50,500	8,000	700	16,700	2,600	14,100
White	139,500	117,100	104,100	13,000	1,400	20,900	6,700	14,200
Black	3,400	2,000	1,700	300	S	1,400	S	800
Hispanic	7,100	5,700	4,900	800	S	1,400	S	1,100
Asian/Pacific Islander	15,400	9,800	8,900	900	S	5,200	S	4,400
Other	1,200	900	700	S	S	S	S	S
Physical and related scientists	172,700	139,600	127,400	12,200	2,900	30,200	18,700	11,500
Male	121,200	101,700	94,600	7,000	1,400	18,100	14,500	3,700
Female	51,500	38,000	32,700	5,200	1,500	12,100	4,300	7,800
White	149,200	120,600	109,200	11,400	2,400	26,200	17,400	8,800
Black	7,400	5,800	5,700	100	S	1,300	1,000	300
Hispanic	5,100	4,600	4,200	300	S	500	S	500
Asian/Pacific Islander	10,700	8,400	8,000	S	S	2,100	S	1,800
Other	300	S	S	S	S	S	S	S
Social and related scientists	84,400	71,400	48,900	22,500	2,000	11,000	1,700	9,200
Male	30,900	26,800	18,400	8,500	S	3,300	S	2,100
Female	53,500	44,600	30,600	14,100	1,200	7,700	S	7,100
White	69,300	58,300	39,500	18,800	1,900	9,100	1,700	7,400
Black	4,600	4,600	3,200	1,400	S	S	S	S
Hispanic	5,400	4,200	3,500	800	S	1,100	S	1,100
Asian/Pacific Islander	4,400	4,000	2,800	1,300	S	S	S	S
Other	S	S	S	S	S	S	S	S
Engineers	1,122,000	907,400	873,300	34,000	16,600	198,000	169,200	28,800
Male	1,016,100	820,400	791,100	29,300	14,700	181,000	166,400	14,500
Female	105,900	86,900	82,200	4,700	1,900	17,100	2,800	14,300
White	969,900	772,800	743,200	29,600	13,600	183,500	160,500	23,000
Black	29,600	27,300	26,900	400	600	1,700	S	800
Hispanic	38,200	33,300	31,600	1,700	1,100	3,800	2,500	1,400
Asian/Pacific Islander	80,400	70,600	68,200	2,400	1,300	8,600	4,900	3,600
Other	3,900	3,400	3,400	S	S	400	400	S
Master's								
S&E occupations	1,188,100	1,032,100	921,500	110,600	17,300	138,800	90,800	48,000
Male	853,800	751,200	705,200	46,000	11,900	90,800	74,100	16,700
Female	334,300	280,900	216,400	64,500	5,400	48,000	16,700	31,300
White	941,500	807,200	713,300	93,900	13,300	121,000	83,000	38,000
Black	39,600	35,900	31,400	4,600	700	3,000	2,000	1,000
Hispanic	37,300	32,800	29,600	3,100	800	3,700	1,700	2,000
Asian/Pacific Islander	166,600	153,000	144,400	8,600	2,500	11,000	4,100	7,000
Other	3,300	3,100	2,800	300	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-38.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Scientists	752,300	655,500	559,900	95,700	9,700	87,000	51,000	36,000
Male	461,000	411,400	376,500	34,900	5,000	44,600	34,800	9,800
Female	291,300	244,200	183,400	60,800	4,700	42,400	16,300	26,200
White	598,400	516,000	433,500	82,500	7,200	75,200	46,200	29,100
Black	30,100	27,300	23,000	4,300	400	2,400	1,700	700
Hispanic	22,300	19,100	16,400	2,700	600	2,500	1,000	1,500
Asian/Pacific Islander	99,300	91,100	85,100	5,900	1,500	6,700	2,100	4,600
Other	2,200	2,100	1,800	300	S	S	S	S
Computer and math scientists	393,700	354,100	323,200	30,900	4,700	34,900	22,900	12,000
Male	277,700	253,700	238,800	14,800	3,300	20,700	16,100	4,600
Female	116,000	100,500	84,400	16,100	1,400	14,200	6,800	7,400
White	290,400	256,200	230,600	25,600	3,600	30,600	20,800	9,800
Black	16,000	15,200	13,800	1,500	S	600	400	200
Hispanic	9,800	8,800	7,900	900	S	900	S	300
Asian/Pacific Islander	76,700	72,900	70,000	2,900	1,000	2,700	1,100	1,600
Other	900	900	800	S	S	S	S	S
Life and related scientists	86,700	72,500	64,500	8,100	1,300	12,900	6,600	6,200
Male	50,700	44,000	41,100	3,000	400	6,300	4,800	1,400
Female	36,000	28,500	23,400	5,100	800	6,600	1,800	4,800
White	72,000	61,200	54,200	7,000	1,000	9,800	5,200	4,600
Black	3,100	2,200	1,900	S	S	900	S	S
Hispanic	2,400	1,800	1,600	200	S	500	S	400
Asian/Pacific Islander	8,900	7,100	6,500	500	S	1,600	S	1,100
Other	300	300	S	S	S	S	S	S
Physical and related scientists	88,500	73,000	63,800	9,100	1,400	14,100	9,600	4,500
Male	65,200	53,700	48,800	4,900	600	10,900	8,500	2,400
Female	23,200	19,300	15,100	4,200	800	3,200	1,100	2,100
White	75,100	62,300	54,500	7,800	600	12,200	9,200	3,000
Black	2,100	1,800	1,600	200	S	S	S	S
Hispanic	2,100	1,400	1,300	S	S	S	S	S
Asian/Pacific Islander	8,800	7,100	6,100	900	S	1,500	S	1,400
Other	400	400	300	S	S	S	S	S
Social and related scientists	183,400	155,900	108,400	47,500	2,300	25,200	11,900	13,300
Male	67,400	60,000	47,800	12,200	600	6,700	5,300	1,500
Female	116,100	95,900	60,500	35,300	1,700	18,400	6,600	11,800
White	160,800	136,200	94,100	42,100	2,000	22,700	10,900	11,700
Black	8,900	8,100	5,800	2,200	S	800	S	S
Hispanic	8,000	7,100	5,600	1,500	S	800	S	700
Asian/Pacific Islander	5,000	4,000	2,400	1,600	S	800	S	500
Other	600	500	400	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-38.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Engineers	435,900	376,500	361,700	14,900	7,600	51,800	39,800	12,000
Male	392,800	339,800	328,700	11,100	6,900	46,200	39,300	6,800
Female	43,000	36,700	33,000	3,800	700	5,600	S	5,200
White	343,100	291,300	279,800	11,400	6,100	45,700	36,800	8,900
Black	9,500	8,600	8,300	300	300	600	S	300
Hispanic	15,000	13,600	13,200	400	S	1,200	700	500
Asian/Pacific Islander	67,300	62,000	59,300	2,700	1,000	4,300	2,000	2,400
Other	1,000	1,000	1,000	S	S	S	S	S
Doctorate								
S&E occupations	547,800	484,100	447,100	37,000	5,800	57,900	48,000	9,900
Male	418,200	368,900	349,600	19,200	4,000	45,300	42,000	3,400
Female	129,600	115,200	97,500	17,700	1,700	12,600	6,100	6,600
White	438,000	381,600	349,100	32,500	4,500	51,900	43,500	8,300
Black	11,900	11,000	10,000	1,000	100	800	500	300
Hispanic	14,200	12,900	11,700	1,200	100	1,100	900	200
Asian/Pacific Islander	81,900	77,000	74,800	2,200	1,000	3,900	2,900	1,000
Other	1,800	1,600	1,500	100	S	200	200	S
Scientists	452,200	399,900	366,100	33,800	4,100	48,200	39,000	9,200
Male	329,500	290,900	274,400	16,400	2,700	36,000	33,100	2,900
Female	122,700	109,100	91,700	17,400	1,400	12,200	5,900	6,300
White	372,000	325,100	295,400	29,700	3,400	43,500	35,700	7,800
Black	10,200	9,300	8,300	1,000	100	700	500	200
Hispanic	11,900	11,000	9,900	1,100	100	800	700	200
Asian/Pacific Islander	56,500	53,100	51,100	1,900	400	3,000	2,000	1,000
Other	1,700	1,500	1,300	100	S	200	200	S
Computer and math scientists	72,800	67,100	63,000	4,100	500	5,300	4,400	900
Male	59,400	54,900	52,300	2,600	400	4,200	3,500	600
Female	13,400	12,200	10,700	1,500	100	1,100	800	300
White	54,200	49,500	46,300	3,100	400	4,300	3,600	700
Black	1,500	1,400	1,000	400	S	100	S	S
Hispanic	1,900	1,600	1,600	S	S	300	300	S
Asian/Pacific Islander	15,100	14,500	14,000	400	S	600	400	200
Other	100	S	S	S	S	S	S	S
Life and related scientists	137,500	121,100	115,300	5,800	1,200	15,200	12,000	3,200
Male	98,100	86,200	83,400	2,800	600	11,200	10,300	900
Female	39,400	34,900	31,900	3,000	600	4,000	1,700	2,300
White	110,300	95,600	91,000	4,600	1,000	13,800	11,100	2,700
Black	2,200	2,100	1,900	200	S	100	S	S
Hispanic	3,800	3,500	3,100	400	100	300	200	100
Asian/Pacific Islander	20,700	19,500	18,900	500	200	1,100	700	400
Other	500	400	400	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-38.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1999

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Physical and related scientists	99,000	84,900	80,500	4,400	1,500	12,700	11,000	1,700
Male	86,000	73,700	70,200	3,500	1,300	11,000	10,300	700
Female	13,000	11,200	10,300	900	100	1,700	700	1,000
White	82,200	69,200	65,400	3,800	1,200	11,800	10,300	1,400
Black	1,300	1,200	1,200	100	S	S	S	S
Hispanic	1,900	1,800	1,700	100	S	100	100	S
Asian/Pacific Islander	13,300	12,300	11,900	400	200	800	500	300
Other	300	300	300	S	S	S	S	S
Social and related scientists	142,800	126,900	107,300	19,600	900	15,000	11,600	3,300
Male	85,900	76,100	68,500	7,600	300	9,500	8,900	700
Female	56,800	50,800	38,800	12,000	600	5,400	2,700	2,700
White	125,300	110,800	92,700	18,100	800	13,700	10,700	3,000
Black	5,100	4,500	4,200	300	100	600	400	100
Hispanic	4,300	4,100	3,500	600	S	100	100	100
Asian/Pacific Islander	7,300	6,800	6,200	500	S	500	400	100
Other	700	700	600	100	S	S	S	S
Engineers	95,600	84,200	81,000	3,200	1,700	9,700	9,000	700
Male	88,700	78,000	75,200	2,800	1,300	9,300	8,900	400
Female	6,900	6,200	5,800	400	400	400	S	300
White	66,000	56,500	53,700	2,800	1,100	8,400	7,900	500
Black	1,800	1,700	1,600	S	S	S	S	S
Hispanic	2,200	1,900	1,900	100	S	300	300	S
Asian/Pacific Islander	25,400	23,900	23,700	200	600	900	900	100
Other	200	100	100	S	S	S	S	S

S = suppressed for reasons of confidentiality, and/or data reliability

^aIncludes professional degrees.

NOTE: For unemployed individuals, occupation is for previous reported job.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

See text table 3-7 and figure 3-14 in Volume 1.

Appendix table 3-39.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
		All degree levels ^a						
S&E occupations	3,786,100	3,303,400	3,019,400	284,000	87,900	394,800	266,400	128,400
Male	2,910,500	2,547,900	2,396,300	151,600	71,400	291,300	244,500	46,800
Female	875,600	755,500	623,100	132,400	16,500	103,600	21,900	81,700
White	3,204,200	2,777,500	2,537,500	240,000	67,900	358,800	252,900	105,900
Black	131,500	119,400	110,900	8,500	3,400	8,600	4,400	4,200
Hispanic	107,300	97,200	90,700	6,500	3,500	6,600	2,800	3,800
Asian/Pacific Islander	332,000	299,300	271,100	28,200	12,500	20,300	6,100	14,200
Other	11,000	10,000	9,200	800	500	500	200	300
Scientists	2,140,900	1,912,300	1,691,400	220,900	38,600	190,000	93,800	96,200
Male	1,405,500	1,276,400	1,177,400	99,000	26,600	102,600	74,300	28,200
Female	735,400	635,900	514,000	121,900	12,100	87,500	19,500	68,000
White	1,809,300	1,612,100	1,424,500	187,600	29,300	167,900	87,700	80,200
Black	87,400	79,800	72,400	7,400	2,000	5,700	2,900	2,800
Hispanic	60,200	53,800	48,700	5,100	2,100	4,300	1,100	3,200
Asian/Pacific Islander	177,300	160,500	140,400	20,200	5,000	11,800	2,100	9,700
Other	6,700	6,100	5,400	600	300	300	S	200
Computer/math scientists	1,065,900	991,500	917,500	74,000	19,400	55,000	20,500	34,500
Male	724,400	686,100	652,500	33,600	14,800	23,400	15,900	7,500
Female	341,500	305,400	265,000	40,400	4,600	31,500	4,500	27,000
White	890,700	827,700	765,000	62,700	14,500	48,500	18,600	29,900
Black	47,200	44,500	42,000	2,400	1,200	1,500	900	700
Hispanic	28,600	26,300	24,900	1,400	900	1,300	300	1,000
Asian/Pacific Islander	96,800	90,600	83,300	7,300	2,700	3,600	700	2,900
Other	2,500	2,400	2,200	200	S	S	S	S
Life/related scientists	379,000	322,300	286,600	35,700	5,700	51,000	23,100	27,900
Male	244,600	212,600	193,700	18,900	2,900	29,100	19,000	10,100
Female	134,400	109,700	92,900	16,800	2,800	21,900	4,100	17,800
White	317,400	269,300	239,700	29,500	4,200	43,900	21,400	22,400
Black	12,600	10,400	9,300	1,100	S	2,200	900	1,300
Hispanic	11,300	10,100	9,300	800	300	900	200	700
Asian/Pacific Islander	36,400	31,300	27,100	4,200	1,100	3,900	500	3,400
Other	1,300	1,100	1,100	S	S	100	S	S
Physical/related scientists	339,500	280,900	247,900	33,100	8,200	50,400	33,400	16,900
Male	261,600	221,100	200,400	20,700	5,800	34,700	28,200	6,500
Female	77,900	59,900	47,500	12,400	2,400	15,600	5,300	10,400
White	289,800	237,600	211,000	26,600	6,700	45,600	32,000	13,500
Black	9,100	8,000	7,400	700	200	800	600	300
Hispanic	8,600	7,100	6,200	900	500	1,000	200	800
Asian/Pacific Islander	30,800	27,200	22,500	4,700	700	2,900	600	2,200
Other	1,100	1,000	800	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-39.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Social/related scientists	356,600	317,600	239,500	78,100	5,300	33,700	16,900	16,900
Male	174,900	156,600	130,800	25,800	3,000	15,300	11,200	4,100
Female	181,600	160,900	108,700	52,300	2,300	18,400	5,700	12,700
White	311,400	277,500	208,800	68,700	3,900	30,000	15,700	14,300
Black	18,600	16,800	13,700	3,200	600	1,200	600	600
Hispanic	11,700	10,300	8,300	2,000	300	1,100	400	700
Asian/Pacific Islander	13,300	11,400	7,400	4,000	400	1,500	200	1,200
Other	1,700	1,600	1,300	200	S	S	S	S
Engineers	1,645,100	1,391,100	1,328,000	63,100	49,300	204,800	172,600	32,200
Male	1,505,000	1,271,500	1,218,900	52,600	44,800	188,700	170,200	18,500
Female	140,200	119,600	109,100	10,500	4,500	16,100	2,400	13,700
White	1,394,900	1,165,400	1,113,000	52,400	38,600	190,900	165,100	25,800
Black	44,100	39,700	38,500	1,100	1,500	3,000	1,600	1,400
Hispanic	47,100	43,400	42,000	1,400	1,400	2,300	1,700	600
Asian/Pacific Islander	154,700	138,800	130,700	8,000	7,500	8,400	4,000	4,400
Other	4,300	3,900	3,800	S	200	S	S	S
Bachelor's								
S&E occupations	2,293,600	1,980,300	1,837,600	142,700	56,100	257,200	177,500	79,700
Male	1,794,800	1,553,200	1,475,300	77,900	46,400	195,200	165,500	29,700
Female	498,800	427,200	362,300	64,800	9,700	62,000	12,100	49,900
White	1,979,800	1,700,100	1,576,600	123,500	44,400	235,300	169,200	66,100
Black	92,800	83,400	78,600	4,800	2,500	7,000	3,400	3,600
Hispanic	69,100	62,600	58,800	3,800	2,300	4,200	1,500	2,700
Asian/Pacific Islander	144,500	127,600	117,600	10,000	6,500	10,400	3,300	7,100
Other	7,300	6,600	6,000	600	500	300	S	S
Scientists	1,122,700	1,007,000	904,700	102,300	18,400	97,300	41,400	55,900
Male	724,900	664,900	620,700	44,200	12,000	47,900	31,400	16,500
Female	397,800	342,100	284,000	58,100	6,300	49,400	10,000	39,300
White	957,900	859,100	770,900	88,200	13,800	84,900	38,500	46,400
Black	57,500	52,000	47,900	4,000	1,400	4,200	1,900	2,300
Hispanic	35,100	31,100	28,400	2,800	1,200	2,800	500	2,300
Asian/Pacific Islander	68,000	61,000	54,200	6,800	1,700	5,300	500	4,800
Other	4,200	3,800	3,300	500	S	S	S	S
Computer/math scientists	720,300	676,200	630,900	45,300	10,300	33,800	10,400	23,400
Male	477,600	457,700	440,900	16,800	7,300	12,600	7,600	5,000
Female	242,700	218,500	190,000	28,500	3,000	21,100	2,700	18,400
White	612,500	574,800	535,600	39,300	7,700	30,000	9,300	20,700
Black	36,500	34,500	32,700	1,800	900	1,200	600	600
Hispanic	21,200	19,800	18,700	1,100	400	1,000	S	800
Asian/Pacific Islander	48,100	45,300	42,300	3,000	1,200	1,600	S	1,300
Other	2,000	1,900	1,700	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-39.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Life/related scientists	159,900	131,600	113,800	17,800	2,600	25,700	8,700	17,000
Male	97,400	82,200	72,700	9,500	1,400	13,900	6,900	7,000
Female	62,400	49,500	41,100	8,400	1,100	11,800	1,800	10,000
White	137,500	114,200	98,600	15,600	2,100	21,200	8,000	13,300
Black	7,500	5,800	5,100	700	S	1,800	600	1,100
Hispanic	5,800	4,900	4,400	500	S	700	S	600
Asian/Pacific Islander	8,300	6,100	5,100	1,000	S	2,000	S	2,000
Other	700	700	700	S	S	S	S	S
Physical/related scientists	163,200	130,700	114,200	16,400	3,300	29,200	20,000	9,300
Male	118,000	96,900	87,300	9,600	2,000	19,100	15,800	3,300
Female	45,200	33,700	26,900	6,800	1,300	10,100	4,200	5,900
White	142,600	113,500	99,600	13,900	2,500	26,500	19,100	7,400
Black	6,500	5,700	5,300	400	S	700	500	100
Hispanic	4,500	3,500	3,000	400	400	600	S	500
Asian/Pacific Islander	8,900	7,300	5,700	1,600	S	1,400	S	1,100
Other	800	700	500	S	S	S	S	S
Social/related scientists	79,300	68,500	45,800	22,700	2,200	8,600	2,400	6,200
Male	31,900	28,200	19,800	8,400	1,400	2,300	1,100	1,200
Female	47,400	40,300	26,000	14,400	800	6,300	1,300	5,000
White	65,300	56,600	37,200	19,400	1,500	7,200	2,100	5,100
Black	7,000	6,000	4,900	1,100	S	600	S	S
Hispanic	3,600	3,000	2,200	700	S	500	S	S
Asian/Pacific Islander	2,700	2,300	1,100	1,200	S	S	S	S
Other	700	600	400	S	S	S	S	S
Engineers	1,170,900	973,300	932,900	40,400	37,700	159,900	136,100	23,800
Male	1,069,900	888,200	854,600	33,600	34,400	147,300	134,100	13,200
Female	101,000	85,100	78,300	6,800	3,300	12,600	2,000	10,600
White	1,021,900	841,000	805,700	35,300	30,600	150,400	130,700	19,700
Black	35,300	31,400	30,700	700	1,100	2,700	1,400	1,300
Hispanic	34,000	31,500	30,500	1,100	1,100	1,400	1,000	400
Asian/Pacific Islander	76,500	66,600	63,400	3,300	4,800	5,100	2,800	2,300
Other	3,200	2,700	2,700	S	S	S	S	S
Master's								
S&E occupations	1,013,600	891,300	781,100	110,200	25,200	97,200	57,200	40,000
Male	741,300	657,300	600,100	57,200	19,900	64,100	51,200	13,000
Female	272,300	234,000	181,100	53,000	5,300	33,000	6,100	27,000
White	831,000	725,900	637,000	88,900	18,200	86,900	54,100	32,800
Black	28,100	26,000	22,700	3,300	900	1,200	800	400
Hispanic	26,900	24,200	22,000	2,200	900	1,800	800	1,000
Asian/Pacific Islander	125,600	113,300	97,700	15,600	5,200	7,100	1,500	5,600
Other	2,000	1,900	1,700	200	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-39.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Scientists	615,600	541,400	450,500	90,900	15,000	59,200	26,500	32,700
Male	378,200	338,200	296,700	41,500	10,700	29,300	20,700	8,600
Female	237,400	203,300	153,800	49,500	4,200	29,900	5,800	24,100
White	513,000	449,400	374,500	74,800	11,100	52,500	24,800	27,700
Black	20,400	18,800	15,800	3,100	500	1,000	700	300
Hispanic	15,300	13,500	11,700	1,900	700	1,100	S	800
Asian/Pacific Islander	65,900	58,900	47,800	11,100	2,700	4,400	700	3,600
Other	1,000	800	700	S	S	S	S	S
Computer/math scientists	290,100	263,600	237,900	25,700	8,300	18,200	7,700	10,500
Male	201,200	185,400	170,600	14,800	6,900	8,900	6,500	2,300
Female	88,900	78,200	67,300	10,900	1,400	9,300	1,200	8,100
White	233,900	212,100	191,300	20,700	6,200	15,700	7,100	8,600
Black	8,900	8,300	7,700	600	300	300	S	S
Hispanic	6,000	5,300	5,000	300	S	S	S	S
Asian/Pacific Islander	40,900	37,600	33,600	4,000	1,300	1,900	S	1,500
Other	400	300	300	S	S	S	S	S
Life/related scientists	85,100	70,400	59,200	11,200	1,800	12,900	5,300	7,600
Male	47,000	40,500	34,800	5,700	700	5,800	4,000	1,800
Female	38,100	29,900	24,300	5,500	1,100	7,100	1,200	5,800
White	70,000	57,400	49,100	8,300	1,100	11,600	4,900	6,700
Black	3,000	2,700	2,400	400	S	S	S	S
Hispanic	2,000	1,900	1,600	300	S	S	S	S
Asian/Pacific Islander	9,900	8,300	6,100	2,200	600	900	S	800
Other	S	S	S	S	S	S	S	S
Physical/related scientists	87,400	72,600	60,100	12,400	2,900	11,900	6,000	6,000
Male	65,700	55,600	47,400	8,200	2,300	7,900	5,700	2,200
Female	21,600	17,000	12,800	4,200	600	4,100	300	3,800
White	74,000	61,100	51,700	9,300	2,400	10,600	5,700	4,900
Black	1,400	1,200	900	300	S	100	S	100
Hispanic	2,200	1,900	1,600	300	S	300	S	S
Asian/Pacific Islander	9,500	8,200	5,700	2,500	300	900	S	700
Other	200	S	S	S	S	S	S	S
Social/related scientists	153,100	134,900	93,300	41,600	2,000	16,200	7,600	8,600
Male	64,300	56,600	43,800	12,800	900	6,700	4,400	2,300
Female	88,800	78,200	49,400	28,800	1,100	9,500	3,200	6,300
White	135,000	118,800	82,400	36,400	1,400	14,700	7,200	7,500
Black	7,200	6,600	4,800	1,800	S	400	S	S
Hispanic	5,000	4,400	3,500	900	S	500	S	S
Asian/Pacific Islander	5,600	4,700	2,200	2,400	400	600	S	600
Other	300	300	300	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-39.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Engineers	398,000	349,900	330,600	19,200	10,200	38,000	30,700	7,300
Male	363,100	319,100	303,400	15,700	9,200	34,800	30,500	4,400
Female	34,900	30,800	27,200	3,500	1,000	3,100	S	2,900
White	318,000	276,600	262,500	14,100	7,100	34,300	29,300	5,100
Black	7,700	7,200	6,900	300	400	200	S	S
Hispanic	11,600	10,700	10,400	300	S	700	500	200
Asian/Pacific Islander	59,700	54,400	49,900	4,500	2,500	2,800	800	2,000
Other	1,000	1,000	1,000	S	S	S	S	S
Doctorate								
S&E occupations	439,400	395,600	368,500	27,100	6,500	37,300	29,700	7,700
Male	346,500	311,500	296,900	14,600	4,900	30,100	26,500	3,600
Female	92,900	84,100	71,600	12,500	1,600	7,300	3,100	4,100
White	360,300	321,300	297,300	24,000	5,200	33,800	27,600	6,200
Black	9,400	9,000	8,500	400	100	400	100	200
Hispanic	10,000	9,100	8,500	500	300	700	600	100
Asian/Pacific Islander	58,200	54,800	52,800	2,000	900	2,500	1,300	1,200
Other	1,500	1,400	1,400	S	100	S	S	S
Scientists	367,100	330,500	306,700	23,800	5,200	31,400	24,400	6,900
Male	278,100	250,000	238,400	11,600	3,700	24,400	21,400	3,000
Female	89,000	80,600	68,300	12,300	1,500	7,000	3,000	4,000
White	308,800	275,900	254,700	21,200	4,300	28,600	23,000	5,600
Black	8,400	8,000	7,700	300	100	300	100	200
Hispanic	8,600	8,000	7,500	500	200	500	400	100
Asian/Pacific Islander	39,900	37,400	35,600	1,800	600	1,900	900	1,100
Other	1,400	1,300	1,300	S	S	S	S	S
Computer/math scientists	52,400	48,700	45,800	2,900	700	2,900	2,300	700
Male	42,800	40,400	38,500	1,900	600	1,800	1,600	200
Female	9,500	8,300	7,300	1,000	100	1,100	700	500
White	41,800	38,500	35,900	2,500	600	2,700	2,000	600
Black	1,300	1,200	1,200	S	S	S	S	S
Hispanic	1,400	1,300	1,200	100	S	200	S	S
Asian/Pacific Islander	7,700	7,600	7,300	300	100	100	100	S
Other	200	200	100	S	S	S	S	S
Life/related scientists	111,400	98,100	93,600	4,500	1,400	11,900	9,000	2,900
Male	83,500	73,300	70,700	2,600	900	9,300	8,100	1,300
Female	27,900	24,800	23,000	1,800	500	2,600	1,000	1,600
White	91,600	79,900	76,100	3,800	1,100	10,600	8,500	2,100
Black	1,700	1,500	1,500	100	S	200	100	100
Hispanic	2,500	2,400	2,400	S	100	100	100	S
Asian/Pacific Islander	15,200	13,900	13,400	500	300	1,000	400	600
Other	300	300	300	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-39.

Individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment status: 1993

Occupation, sex, and race/ethnicity	S&Es, total	Employed			Unemployed and seeking job	Not in labor force		
		Total	Full time	Part time		Total	Retired	Not seeking job
Physical/related scientists	87,800	77,000	72,900	4,100	2,000	8,800	7,100	1,700
Male	77,500	68,300	65,500	2,800	1,500	7,800	6,700	1,000
Female	10,200	8,700	7,400	1,400	500	1,000	400	600
White	72,200	62,400	59,000	3,400	1,700	8,100	6,800	1,200
Black	1,200	1,100	1,100	S	S	S	S	S
Hispanic	1,900	1,700	1,600	100	S	100	S	S
Asian/Pacific Islander	12,300	11,600	11,000	700	200	600	200	400
Other	200	200	200	S	S	S	S	S
Social/related scientists	115,600	106,700	94,400	12,400	1,100	7,800	6,000	1,800
Male	74,200	68,000	63,800	4,200	700	5,500	5,000	500
Female	41,400	38,700	30,600	8,100	400	2,300	1,000	1,300
White	103,300	95,100	83,600	11,500	900	7,300	5,700	1,600
Black	4,200	4,100	3,800	300	S	100	S	S
Hispanic	2,800	2,600	2,400	300	S	100	100	S
Asian/Pacific Islander	4,600	4,300	3,900	300	100	300	200	100
Other	700	700	700	S	S	S	S	S
Engineers	72,300	65,000	61,800	3,200	1,300	6,000	5,200	700
Male	68,400	61,500	58,500	3,000	1,200	5,600	5,100	600
Female	3,900	3,500	3,300	200	100	300	100	200
White	51,500	45,400	42,600	2,800	900	5,200	4,600	600
Black	1,000	1,000	900	100	S	S	S	S
Hispanic	1,400	1,100	1,000	100	100	S	S	S
Asian/Pacific Islander	18,300	17,500	17,200	300	300	500	400	100
Other	100	100	100	S	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability; S&E = science and engineering; SESTAT = Scientists and Engineers Statistical Data System

^aIncludes professional degrees.

NOTE: For unemployed individuals, occupation is for their previous reported job.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

See text table 3-7 and figure 3-14 in Volume 1.

Appendix table 3-40.

Individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999

Occupation, sex, and race/ethnicity	Employed S&Es, total	Business/industry			Educational institution			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
S&E occupations	3,540,800	2,482,400	2,263,300	105,200	114,000	608,500	496,400	112,100	449,900	241,100	208,800
Male	2,705,000	1,966,400	1,836,000	67,900	62,500	385,700	328,200	57,600	352,900	194,600	158,400
Female	835,800	516,000	427,300	37,300	51,500	222,800	168,200	54,600	97,000	46,500	50,400
White	2,896,600	2,036,200	1,842,100	98,500	95,600	502,500	404,600	97,900	357,900	196,000	161,900
Black	121,600	74,700	70,000	500	4,100	22,600	17,200	5,400	24,400	13,400	11,000
Hispanic	120,900	79,800	72,200	2,000	5,600	23,100	18,100	5,000	18,000	7,300	10,700
Asian/Pacific Islander	390,500	284,900	272,800	4,000	8,100	58,200	54,600	3,600	47,400	23,400	24,000
Other	11,300	6,900	6,100	200	600	2,100	1,800	300	2,200	1,000	1,200
Scientists	2,170,500	1,373,600	1,197,400	80,200	96,000	541,800	434,200	107,600	255,100	137,300	117,800
Male	1,464,800	958,900	868,400	44,000	46,500	327,000	273,400	53,600	178,900	102,400	76,600
Female	705,800	414,700	329,000	36,200	49,500	214,900	160,900	54,000	76,200	34,900	41,300
White	1,774,200	1,112,100	955,700	76,100	80,400	452,600	358,300	94,300	209,500	114,300	95,200
Black	84,000	47,900	43,500	300	4,100	20,300	15,000	5,300	15,800	8,900	6,900
Hispanic	71,800	42,600	36,700	1,200	4,700	20,400	15,700	4,700	8,900	3,300	5,600
Asian/Pacific Islander	233,900	167,500	158,600	2,400	6,500	46,600	43,400	3,100	19,800	10,300	9,400
Other	6,700	3,500	2,900	200	400	2,000	1,700	300	1,200	500	700
Computer/math scientists	1,167,400	943,800	886,800	21,500	35,600	132,200	95,000	37,300	91,300	52,600	38,600
Male	850,600	700,700	664,400	16,800	19,400	84,900	62,100	22,800	65,100	40,000	25,100
Female	316,700	243,100	222,300	4,700	16,100	47,400	32,900	14,400	26,200	12,700	13,600
White	922,200	741,900	690,900	19,900	31,100	109,800	78,900	30,900	70,400	42,400	28,000
Black	51,400	37,800	36,600	S	1,200	6,000	3,200	2,800	7,600	4,600	3,000
Hispanic	37,600	29,400	28,300	300	800	4,400	2,700	1,700	3,800	1,100	2,700
Asian/Pacific Islander	153,600	132,500	128,800	1,300	2,400	11,800	9,900	1,900	9,300	4,400	4,900
Other	2,700	2,300	2,200	S	100	300	300	S	100	S	100
Life/related scientists	341,900	113,400	92,600	8,000	12,800	163,300	148,900	14,400	65,300	36,700	28,500
Male	217,500	72,000	60,600	4,700	6,600	98,400	91,000	7,400	47,000	27,900	19,200
Female	124,400	41,300	32,000	3,200	6,200	64,800	57,900	6,900	18,300	8,900	9,400
White	285,100	95,100	77,900	7,400	9,900	133,700	120,900	12,800	56,300	31,900	24,400
Black	6,600	1,300	1,200	S	100	3,400	3,000	400	1,900	1,400	600
Hispanic	10,900	3,000	2,300	300	300	6,400	5,900	500	1,600	400	1,200
Asian/Pacific Islander	37,700	13,600	10,900	300	2,400	19,300	18,900	400	4,700	2,900	1,800
Other	1,600	400	300	S	100	400	300	100	700	200	500
Physical/related scientists	297,900	161,200	148,800	6,300	6,100	82,400	73,200	9,100	54,300	31,300	23,000
Male	229,400	123,800	113,000	5,900	4,900	63,500	56,500	7,000	42,100	24,900	17,300
Female	68,400	37,400	35,900	400	1,200	18,900	16,800	2,100	12,100	6,400	5,700
White	252,500	135,700	124,700	6,000	5,000	70,800	62,400	8,300	46,000	26,600	19,400
Black	8,800	4,400	4,300	S	100	1,400	1,200	300	2,900	1,500	1,400
Hispanic	7,800	4,600	4,000	100	500	2,100	2,000	100	1,100	900	200
Asian/Pacific Islander	27,800	15,900	15,400	100	400	7,700	7,300	400	4,200	2,300	1,900
Other	900	500	400	100	100	300	300	S	100	100	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-40.
Individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999

Occupation, sex, and race/ethnicity	Employed S&Es, total	Business/industry			Educational institution			Government		
		Total	Profit	Self-employed	Four-year college/ university		Other	Total	Federal	State/ local
					Total	Nonprofit				
Social/related scientists	363,400	155,200	69,200	44,500	41,600	163,900	117,100	46,800	44,300	16,600
Male	167,300	62,400	30,300	16,500	15,500	80,200	63,800	16,300	24,700	9,700
Female	196,200	92,800	38,900	27,900	26,100	83,800	53,200	30,500	19,600	6,900
White	314,400	139,300	62,200	42,800	34,400	138,300	96,100	42,200	36,700	13,400
Black	17,200	4,400	1,400	300	2,700	9,500	7,700	1,800	3,300	1,400
Hispanic	15,500	5,700	2,100	600	3,100	7,400	5,100	2,300	2,400	1,000
Asian/Pacific Islander	14,800	5,500	3,500	700	1,300	7,700	7,400	400	1,600	800
Other	1,500	300	100	100	100	900	900	100	300	200
Engineers	1,370,300	1,108,800	1,065,900	25,000	18,000	66,700	62,100	4,500	194,800	103,800
Male	1,240,200	1,007,500	967,600	23,900	16,000	58,700	54,800	3,900	174,000	92,200
Female	130,000	101,300	98,300	1,100	1,900	7,900	7,300	600	20,800	11,600
White	1,122,400	924,100	886,500	22,400	15,200	49,900	46,300	3,600	148,400	81,700
Black	37,700	26,800	26,500	200	S	2,300	2,200	100	8,600	4,500
Hispanic	49,100	37,200	35,500	800	900	2,800	2,400	400	9,100	4,000
Asian/Pacific Islander	156,600	117,300	114,200	1,600	1,600	11,700	11,200	500	27,600	13,000
Other	4,600	3,500	3,200	S	200	100	100	S	1,000	600
Bachelor's										
S&E occupations	1,994,400	1,555,000	1,465,300	37,200	52,500	171,800	142,500	29,300	267,600	130,200
Male	1,564,700	1,256,600	1,196,700	31,700	28,200	95,700	79,300	16,300	212,500	104,600
Female	429,700	298,400	268,600	5,600	24,300	76,100	63,100	13,000	55,100	25,600
White	1,680,900	1,327,000	1,248,300	34,500	44,100	142,700	117,200	25,500	211,200	104,600
Black	73,900	51,600	49,000	200	2,400	6,300	4,900	1,400	16,000	8,800
Hispanic	74,800	53,900	50,400	700	2,900	8,500	7,200	1,300	12,400	4,300
Asian/Pacific Islander	158,300	117,900	113,200	1,800	2,900	13,800	12,700	1,100	26,700	11,900
Other	6,600	4,600	4,300	S	300	500	500	S	1,500	500
Scientists	1,087,100	802,300	738,000	22,000	42,300	150,400	123,500	26,900	134,300	66,100
Male	744,300	572,000	536,400	16,800	18,800	77,700	63,700	14,000	94,600	48,800
Female	342,800	230,300	201,600	5,300	23,400	72,700	59,800	12,900	39,800	17,200
White	908,100	671,100	615,600	20,500	34,900	127,000	103,400	23,600	110,000	55,200
Black	46,600	32,300	29,900	S	2,300	5,300	4,000	1,300	9,000	5,200
Hispanic	41,500	28,100	25,400	500	2,200	7,400	6,100	1,300	6,000	1,700
Asian/Pacific Islander	87,700	68,900	65,300	1,000	2,700	10,200	9,400	700	8,600	3,800
Other	3,100	2,000	1,800	S	200	500	500	S	700	500
Computer/math scientists	740,500	630,000	592,300	13,300	24,400	51,000	36,100	14,900	59,500	31,900
Male	538,900	467,200	444,100	10,200	12,900	32,000	21,900	10,100	39,700	22,400
Female	201,600	162,800	148,200	3,000	11,500	19,000	14,200	4,800	19,800	9,500
White	612,200	522,100	488,200	12,400	21,500	43,700	31,300	12,400	46,300	26,100
Black	34,200	27,200	26,200	S	1,000	2,100	1,000	1,100	4,900	2,500
Hispanic	27,000	21,800	21,100	200	500	2,100	1,300	800	3,100	700
Asian/Pacific Islander	65,400	57,300	55,300	700	1,300	3,100	2,400	600	5,000	2,600
Other	1,700	1,500	1,400	S	100	100	100	S	100	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-40.
Individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999

Occupation, sex, and race/ethnicity	Employed S&Es, total	Business/industry			Educational institution			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
Life/related scientists	135,500	55,600	47,500	3,800	4,300	47,300	43,000	4,300	32,500	15,900	16,700
Male	76,900	33,200	28,900	2,700	1,600	20,500	18,700	1,800	23,200	13,100	10,100
Female	58,600	22,500	18,600	1,100	2,700	26,800	24,300	2,500	9,300	2,800	6,600
White	117,100	49,700	43,500	3,400	2,800	39,200	34,900	4,300	28,200	14,600	13,600
Black	2,000	100	100	S	S	500	500	S	1,400	900	500
Hispanic	5,700	1,500	1,100	200	200	3,100	3,100	100	1,000	100	1,000
Asian/Pacific Islander	9,800	4,000	2,800	200	1,100	4,400	4,400	S	1,300	100	1,200
Other	900	200	100	S	100	100	100	S	500	200	400
Physical/related scientists	139,600	87,200	82,400	2,800	2,000	22,300	21,200	1,100	30,200	14,000	16,200
Male	101,700	61,700	57,400	2,700	1,600	15,300	14,300	1,000	24,700	11,500	13,200
Female	38,000	25,500	25,000	100	400	7,000	6,900	100	5,500	2,500	3,000
White	120,600	74,700	70,600	2,700	1,400	19,900	18,900	1,000	26,000	11,700	14,300
Black	5,800	3,600	3,500	S	100	300	300	S	1,900	1,100	800
Hispanic	4,600	3,300	2,800	100	500	600	600	S	700	500	200
Asian/Pacific Islander	8,400	5,300	5,300	S	S	1,500	1,400	100	1,600	700	900
Other	300	200	200	S	S	S	S	S	S	S	S
Social/related scientists	71,400	29,600	15,800	2,200	11,600	29,800	23,100	6,700	12,100	4,300	7,800
Male	26,800	9,900	6,000	1,200	2,800	9,900	8,800	1,200	7,000	1,800	5,100
Female	44,600	19,600	9,800	1,000	8,800	19,900	14,400	5,500	5,100	2,500	2,700
White	58,300	24,500	13,300	2,000	9,200	24,300	18,300	6,000	9,400	2,800	6,700
Black	4,600	1,400	100	S	1,300	2,400	2,200	200	800	700	100
Hispanic	4,200	1,400	400	S	900	1,700	1,200	500	1,200	400	800
Asian/Pacific Islander	4,000	2,200	1,900	200	200	1,100	1,100	S	700	400	200
Other	300	S	S	S	S	300	300	S	S	S	S
Engineers	907,400	752,700	727,200	15,200	10,300	21,400	19,000	2,400	133,300	64,100	69,300
Male	820,400	684,500	660,300	14,900	9,400	17,900	15,700	2,300	117,900	55,700	62,200
Female	86,900	68,100	67,000	300	900	3,400	3,300	100	15,400	8,300	7,100
White	772,800	655,800	632,600	14,000	9,200	15,700	13,700	2,000	101,200	49,500	51,800
Black	27,300	19,400	19,100	200	S	1,000	900	100	7,000	3,600	3,400
Hispanic	33,300	25,900	25,000	200	700	1,100	1,000	S	6,300	2,600	3,700
Asian/Pacific Islander	70,600	49,000	48,000	800	200	3,600	3,300	300	18,100	8,100	10,000
Other	3,400	2,600	2,500	S	100	S	S	700	300	500	
Master's											
S&E occupations	1,032,100	719,400	639,100	41,200	39,100	178,400	111,800	66,600	134,300	75,500	58,800
Male	751,200	548,600	509,600	20,200	18,700	99,300	68,000	31,300	103,300	61,500	41,800
Female	280,900	170,800	129,500	20,900	20,400	79,100	43,800	35,400	31,000	14,000	17,000
White	807,200	551,700	480,000	38,900	32,800	148,000	89,300	58,700	107,500	62,300	45,200
Black	35,900	20,300	18,800	100	1,400	8,700	5,800	2,900	6,900	3,700	3,200
Hispanic	32,800	21,000	18,400	600	2,000	7,100	3,700	3,400	4,700	2,300	2,300
Asian/Pacific Islander	153,000	124,600	120,400	1,500	2,600	13,900	12,600	1,300	14,600	6,700	7,900
Other	3,100	1,800	1,500	100	200	700	400	200	600	400	200

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-40.
Individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999

Occupation, sex, and race/ethnicity	Employed S&Es, total	Business/industry			Educational institution			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
Scientists	655,500	415,600	348,300	33,300	34,000	159,200	94,100	65,100	80,800	42,500	38,300
Male	411,400	274,500	246,700	13,200	14,600	82,300	52,300	30,000	54,600	31,300	23,300
Female	244,200	141,100	101,600	20,100	19,400	76,900	41,800	35,100	26,200	11,200	15,000
White	516,000	316,500	255,900	31,900	28,700	133,100	75,500	57,600	66,400	35,400	31,000
Black	27,300	13,600	12,100	100	1,400	8,300	5,400	2,900	5,400	2,900	2,500
Hispanic	19,100	10,900	8,800	300	1,900	6,200	3,100	3,100	2,000	1,100	1,000
Asian/Pacific Islander	91,100	73,400	70,600	1,000	1,900	11,000	9,700	1,200	6,700	3,000	3,600
Other	2,100	1,100	900	100	100	700	400	200	300	100	200
Computer/math scientists	354,100	276,400	260,300	7,000	9,000	50,200	29,900	20,300	27,600	17,800	9,800
Male	253,700	203,800	193,200	5,500	5,100	28,100	16,800	11,300	21,700	15,200	6,600
Female	100,500	72,600	67,100	1,500	4,000	22,100	13,100	8,900	5,800	2,600	3,200
White	256,200	194,100	179,600	6,500	8,000	41,100	24,100	17,000	21,000	14,200	6,800
Black	15,200	10,100	9,900	S	100	2,800	1,600	1,300	2,400	1,900	500
Hispanic	8,800	6,500	6,300	S	200	1,600	700	900	700	300	300
Asian/Pacific Islander	72,900	64,900	63,700	500	700	4,500	3,400	1,000	3,500	1,400	2,200
Other	900	700	700	S	S	200	200	S	S	S	S
Life/related scientists	72,500	25,000	19,100	2,100	3,900	27,800	20,900	6,900	19,700	9,800	9,900
Male	44,000	14,400	12,100	600	1,700	15,100	11,700	3,400	14,500	6,900	7,600
Female	28,500	10,700	7,000	1,500	2,200	12,700	9,200	3,500	5,200	2,900	2,300
White	61,200	20,500	15,200	2,000	3,300	22,800	16,700	6,100	17,900	8,700	9,200
Black	2,200	800	800	S	S	1,200	900	400	200	200	S
Hispanic	1,800	500	500	S	S	900	500	400	400	100	200
Asian/Pacific Islander	7,100	3,200	2,600	100	500	2,800	2,800	S	1,000	700	300
Other	300	S	S	S	S	100	S	100	100	S	100
Physical/related scientists	73,000	40,100	36,200	2,300	1,600	19,400	14,200	5,200	13,500	8,200	5,300
Male	53,700	32,500	29,200	2,100	1,200	13,200	9,600	3,600	8,000	5,100	2,900
Female	19,300	7,600	6,900	200	400	6,200	4,500	1,700	5,500	3,100	2,400
White	62,300	35,000	31,300	2,200	1,500	16,600	11,600	5,000	10,800	7,000	3,800
Black	1,800	500	500	S	S	300	300	100	1,000	300	700
Hispanic	1,400	800	800	S	S	400	300	100	200	100	S
Asian/Pacific Islander	7,100	3,600	3,500	S	100	2,000	1,900	S	1,500	800	800
Other	400	300	100	100	100	100	100	S	S	S	S
Social/related scientists	155,900	74,100	32,700	21,900	19,400	61,800	29,100	32,700	20,000	6,700	13,300
Male	60,000	23,800	12,200	5,100	6,600	25,800	14,200	11,700	10,400	4,100	6,300
Female	95,900	50,300	20,500	16,900	12,900	35,900	15,000	21,000	9,700	2,600	7,000
White	136,200	66,900	29,900	21,200	15,900	52,600	23,100	29,500	16,600	5,400	11,200
Black	8,100	2,300	1,000	S	1,300	3,900	2,700	1,200	1,900	500	1,300
Hispanic	7,100	3,000	1,100	200	1,700	3,300	1,500	1,700	800	500	400
Asian/Pacific Islander	4,000	1,700	800	400	500	1,700	1,600	200	500	200	300
Other	500	100	S	S	100	300	200	100	200	100	100

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-40.
Individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999

Occupation, sex, and race/ethnicity	Employed S&Es, total	Business/industry			Educational institution			Government		
		Total	Self-employed		Four-year college/ university	Other	Total	Federal	State/ local	
			Profit	Nonprofit						
Engineers	376,500	303,800	290,800	7,900	5,100	19,200	17,700	1,500	53,500	33,000
Male	339,800	274,100	262,900	7,000	4,100	17,000	15,800	1,300	48,700	30,200
Female	36,700	29,700	27,900	800	1,000	2,200	1,900	300	4,800	2,800
White	291,300	235,100	224,100	6,900	4,100	15,000	13,800	1,100	41,200	26,900
Black	8,600	6,600	6,600	S	S	500	500	S	1,600	900
Hispanic	13,600	10,200	9,700	400	100	900	600	300	2,600	1,200
Asian/Pacific Islander	62,000	51,100	49,800	500	800	2,900	2,800	100	7,900	3,700
Other	1,000	700	600	S	100	S	S	S	300	300
Doctorate										
S&E occupations	484,100	195,000	150,000	24,700	20,300	244,300	229,900	14,400	44,800	32,900
Male	368,900	154,200	125,100	14,900	14,200	179,700	170,800	9,000	35,000	26,500
Female	115,200	40,800	24,800	9,900	6,100	64,600	59,100	5,500	9,800	6,300
White	381,600	146,000	106,100	23,300	16,700	198,900	186,900	12,000	36,700	27,000
Black	11,000	2,500	1,900	300	300	7,300	6,200	1,000	1,300	700
Hispanic	12,900	4,400	3,300	400	700	7,600	7,300	300	1,000	600
Asian/Pacific Islander	77,000	41,600	38,400	700	2,600	29,700	28,600	1,100	5,700	4,500
Other	1,600	500	300	100	100	900	900	S	200	100
Scientists	399,900	144,000	103,200	23,000	17,700	218,300	204,400	13,800	37,700	26,900
Male	290,900	106,400	81,600	13,100	11,700	155,900	147,400	8,500	28,500	21,100
Female	109,100	37,600	21,600	9,900	6,100	62,300	57,000	5,300	9,200	5,800
White	325,100	114,000	77,400	21,800	14,800	179,700	168,200	11,500	31,400	22,400
Black	9,300	1,700	1,200	200	300	6,400	5,400	1,000	1,200	600
Hispanic	11,000	3,400	2,400	400	600	6,700	6,500	200	800	500
Asian/Pacific Islander	53,100	24,400	21,900	400	2,000	24,500	23,500	1,000	4,200	3,300
Other	1,500	400	200	100	100	900	800	S	100	100
Computer/math scientists	67,100	32,600	29,400	1,100	2,000	30,700	28,700	2,000	3,800	2,700
Male	54,900	27,100	24,700	1,000	1,400	24,500	23,100	1,400	3,200	2,200
Female	12,200	5,400	4,700	100	600	6,200	5,600	600	600	500
White	49,500	21,800	19,300	1,000	1,500	24,600	23,300	1,400	3,100	2,100
Black	1,400	300	200	S	S	1,100	700	400	100	S
Hispanic	1,600	800	700	S	100	700	700	S	S	S
Asian/Pacific Islander	14,500	9,700	9,200	100	300	4,200	4,000	200	600	500
Other	S	S	S	S	S	S	S	S	S	S
Life/related scientists	121,100	30,400	24,200	1,900	4,300	78,500	75,600	2,900	12,200	10,200
Male	86,200	23,000	18,700	1,300	3,000	54,300	52,400	2,000	8,900	7,400
Female	34,900	7,400	5,500	600	1,300	24,200	23,200	900	3,300	2,800
White	95,600	22,900	17,700	1,800	3,400	63,300	60,800	2,500	9,400	7,800
Black	2,100	400	300	S	100	1,400	1,300	100	400	300
Hispanic	3,500	900	800	S	100	2,400	2,300	100	200	200
Asian/Pacific Islander	19,500	6,100	5,300	100	700	11,200	10,900	300	2,100	1,900
Other	400	200	100	S	S	200	200	S	100	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-40.

Individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999

Occupation, sex, and race/ethnicity	Employed S&Es, total	Business/industry			Educational institution			Government			
		Total	Profit	Self-employed	Nonprofit	Total	Four-year college/ university	Other	Total	Federal	State/ local
Physical/related scientists	84,900	33,800	30,200	1,100	2,500	40,600	37,800	2,800	10,400	8,800	1,600
Male	73,700	29,500	26,300	1,000	2,100	34,900	32,500	2,500	9,200	8,000	1,300
Female	11,200	4,400	4,000	100	300	5,700	5,300	400	1,100	900	300
White	69,200	25,900	22,800	1,000	2,100	34,200	31,900	2,400	9,000	7,700	1,300
Black	1,200	400	400	S	S	800	600	200	100	100	S
Hispanic	1,800	400	400	S	S	1,100	1,100	S	200	200	S
Asian/Pacific Islander	12,300	7,100	6,600	100	400	4,200	4,000	300	1,000	800	200
Other	300	S	S	S	S	200	200	S	S	S	S
Social/related scientists	126,900	47,100	19,300	18,800	8,900	68,500	62,300	6,100	11,300	5,200	6,100
Male	76,100	26,800	11,900	9,700	5,100	42,200	39,500	2,700	7,200	3,600	3,600
Female	50,800	20,300	7,500	9,100	3,800	26,300	22,900	3,400	4,200	1,600	2,500
White	110,800	43,500	17,700	18,000	7,800	57,500	52,200	5,300	9,800	4,800	5,100
Black	4,500	700	300	200	200	3,200	2,800	400	700	200	500
Hispanic	4,100	1,300	500	300	400	2,500	2,400	100	400	100	200
Asian/Pacific Islander	6,800	1,500	800	100	600	4,900	4,600	200	400	100	300
Other	700	200	100	100	S	400	400	S	100	S	S
Engineers	84,200	51,000	46,700	1,700	2,500	26,100	25,500	600	7,100	5,900	1,200
Male	78,000	47,800	43,500	1,700	2,500	23,800	23,300	400	6,500	5,400	1,100
Female	6,200	3,300	3,200	S	100	2,300	2,100	200	600	500	100
White	56,500	32,000	28,700	1,500	1,900	19,200	18,700	500	5,300	4,700	700
Black	1,700	700	700	S	S	800	800	S	100	100	S
Hispanic	1,900	1,000	900	S	100	800	800	S	200	100	100
Asian/Pacific Islander	23,900	17,200	16,400	200	600	5,200	5,100	100	1,500	1,100	400
Other	100	100	100	S	S	100	100	S	S	S	S

S = suppressed for reasons of confidentiality and/or data reliability; S&E = science and engineering; SESTAT = Scientists and Engineers Statistical Data System

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-41.

Employed U.S. scientists and engineers, by highest degree attained, occupation, sex, and race/ethnicity: 1999

Occupation	Employed S&Es, total	Sex		Race/ethnicity				Asian/Pacific Islander	Other
		Male	Female	White	Black	Hispanic			
All degree levels^a									
S&E occupations	3,540,800	2,705,000	835,800	2,896,600	121,600	120,900	390,500	11,300	
Scientists	2,170,500	1,464,800	705,800	1,774,200	84,000	71,800	233,900	6,700	
Computer/math scientists	1,167,400	850,600	316,700	922,200	51,400	37,600	153,600	2,700	
Life/related scientists	341,900	217,500	124,400	285,100	6,600	10,900	37,700	1,600	
Physical/related scientists	297,900	229,400	68,400	252,500	8,800	7,800	27,800	900	
Social/related scientists	363,400	167,300	196,200	314,400	17,200	15,500	14,800	1,500	
Engineers	1,370,300	1,240,200	130,000	1,122,400	37,700	49,100	156,600	4,600	
Bachelor's									
S&E occupations	1,994,400	1,564,700	429,700	1,680,900	73,900	74,800	158,300	6,600	
Scientists	1,087,100	744,300	342,800	908,100	46,600	41,500	87,700	3,100	
Computer/math scientists	740,500	538,900	201,600	612,200	34,200	27,000	65,400	1,700	
Life/related scientists	135,500	76,900	58,600	117,100	2,000	5,700	9,800	900	
Physical/related scientists	139,600	101,700	38,000	120,600	5,800	4,600	8,400	S	
Social/related scientists	71,400	26,800	44,600	58,300	4,600	4,200	4,000	S	
Engineers	907,400	820,400	86,900	772,800	27,300	33,300	70,600	3,400	
Master's									
S&E occupations	1,032,100	751,200	280,900	807,200	35,900	32,800	153,000	3,100	
Scientists	655,500	411,400	244,200	516,000	27,300	19,100	91,100	2,100	
Computer/math scientists	354,100	253,700	100,500	256,200	15,200	8,800	72,900	900	
Life/related scientists	72,500	44,000	28,500	61,200	2,200	1,800	7,100	300	
Physical/related scientists	73,000	53,700	19,300	62,300	1,800	1,400	7,100	400	
Social/related scientists	155,900	60,000	95,900	136,200	8,100	7,100	4,000	500	
Engineers	376,500	339,800	36,700	291,300	8,600	13,600	62,000	1,000	
Doctorate									
S&E occupations	484,100	368,900	115,200	381,600	11,000	12,900	77,000	1,600	
Scientists	399,900	290,900	109,100	325,100	9,300	11,000	53,100	1,500	
Computer/math scientists	67,100	54,900	12,200	49,500	1,400	1,600	14,500	S	
Life/related scientists	121,100	86,200	34,900	95,600	2,100	3,500	19,500	400	
Physical/related scientists	84,900	73,700	11,200	69,200	1,200	1,800	12,300	300	
Social/related scientists	126,900	76,100	50,800	110,800	4,500	4,100	6,800	700	
Engineers	84,200	78,000	6,200	56,500	1,700	1,900	23,900	100	

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Science & Engineering Indicators – 2002

Appendix table 3-42.

Employed U.S. scientists and engineers, by highest degree attained, occupation, sex, and race/ethnicity: 1997

Occupation	Employed S&Es, total	Sex		Race/ethnicity				
		Male	Female	White	Black	Hispanic	Asian/Pacific Islander	Other
All degree levels^a								
S&E occupations	3,369,400	2,606,100	763,300	2,791,900	113,000	103,500	349,800	11,300
Scientists	1,995,100	1,355,400	639,600	1,654,600	77,500	55,800	200,100	7,100
Computer/math scientists	1,039,500	758,600	280,900	839,400	44,900	26,200	126,600	2,500
Life/related scientists	321,800	205,900	115,900	272,400	7,700	8,000	32,300	1,400
Physical/related scientists	284,900	223,100	61,800	240,200	8,400	7,200	27,900	1,200
Social/related scientists	349,000	167,900	181,100	302,600	16,500	14,400	13,300	2,100
Engineers	1,374,400	1,250,700	123,700	1,137,300	35,400	47,700	149,700	4,200
Bachelor's								
S&E occupations	1,917,600	1,522,200	395,500	1,632,700	72,600	62,200	143,200	7,000
Scientists	1,000,800	688,500	312,300	846,900	46,200	29,400	74,200	4,000
Computer/math scientists	675,400	488,000	187,400	566,700	33,100	18,100	55,800	1,700
Life/related scientists	125,200	74,300	50,900	110,000	3,000	3,300	8,000	900
Physical/related scientists	131,700	97,100	34,600	114,000	5,500	3,900	7,900	400
Social/related scientists	68,500	29,100	39,400	56,300	4,600	4,200	2,500	900
Engineers	916,900	833,700	83,200	785,800	26,300	32,800	68,900	3000
Master's								
S&E occupations	967,900	715,300	252,600	770,200	30,000	29,300	135,800	2,700
Scientists	592,000	374,400	217,600	475,100	21,900	16,000	77,400	1,700
Computer/math scientists	301,600	219,300	82,300	226,400	10,300	6,300	57,900	600
Life/related scientists	70,300	40,000	30,300	59,400	2,500	1,400	6,700	200
Physical/related scientists	69,100	52,600	16,500	57,700	1,500	1,600	7,900	500
Social/related scientists	151,100	62,500	88,600	131,600	7,500	6,600	4,800	400
Engineers	375,900	340,900	34,900	295,100	8,100	13,300	58,400	1,000
Doctorate								
S&E occupations	454,700	348,300	106,400	363,600	9,600	10,700	69,200	1,600
Scientists	375,300	274,200	101,000	309,100	8,600	9,300	46,900	1,400
Computer/math scientists	59,000	48,500	10,500	43,800	1,100	1,600	12,300	200
Life/related scientists	111,800	80,600	31,200	90,700	1,800	2,600	16,500	300
Physical/related scientists	83,700	73,000	10,700	68,200	1,400	1,700	12,100	200
Social/related scientists	120,800	72,200	48,600	106,400	4,400	3,300	5,900	700
Engineers	79,400	74,100	5,300	54,500	1,100	1,500	22,300	100

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1997.

Science & Engineering Indicators – 2002

Appendix table 3-43.

Individuals employed in S&E occupations by highest degree attained, occupation, sex, and race/ethnicity: 1995

Occupation	Employed S&Es, total	Sex		Race/ethnicity				Asian/Pacific Islander	Other
		Male	Female	White	Black	Hispanic			
All degree levels^a									
S&E occupations	3,185,600	2,472,100	713,500	2,673,700	107,500	90,100	304,600	9,700	
Scientists	1,846,600	1,248,100	598,500	1,552,600	73,200	47,900	167,300	5,500	
Computer/math scientists	949,500	674,500	275,000	784,900	39,300	22,800	100,200	2,300	
Life/related scientists	305,300	199,400	105,900	257,200	9,700	8,500	29,000	900	
Physical/related scientists	274,300	215,200	59,100	232,600	7,800	6,800	26,200	800	
Social/related scientists	317,500	159,000	158,500	277,900	16,500	9,800	11,800	1,500	
Engineers	1,339,000	1,224,000	115,000	1,121,000	34,200	42,200	137,300	4,200	
Bachelor's									
S&E occupations	1,849,300	1,468,600	380,700	1,589,700	71,000	55,000	127,600	5,900	
Scientists	940,400	639,500	300,900	803,300	44,600	26,400	63,400	2,700	
Computer/math scientists	627,300	438,700	188,700	533,100	29,000	17,200	46,500	1,500	
Life/related scientists	122,200	75,300	46,900	106,700	4,300	4,200	6,700	300	
Physical/related scientists	128,800	95,000	33,800	112,300	5,400	3,000	7,500	500	
Social/related scientists	62,000	30,500	31,500	51,200	5,900	2,100	2,600	300	
Engineers	908,900	829,100	79,800	786,400	26,400	28,600	64,200	3200	
Master's									
S&E occupations	893,200	661,200	232,000	725,600	25,700	23,900	115,800	2,200	
Scientists	533,900	332,500	201,400	439,900	18,700	12,200	61,700	1,400	
Computer/math scientists	267,900	190,300	77500	209,800	9,000	4,300	44,100	500	
Life/related scientists	63,800	35,900	27,900	53,500	2,500	1,200	6,300	300	
Physical/related scientists	67,200	51,300	15,900	56,200	1,100	2,200	7,500	200	
Social/related scientists	135,000	54,900	80,100	120,300	6,100	4,400	3,700	400	
Engineers	359,300	328,700	30,600	285,800	6,900	11,700	54,000	800	
Doctorate									
S&E occupations	412,100	320,500	91,600	332,200	9,100	10,100	59,200	1,500	
Scientists	343,600	256,600	87,000	285,400	8,200	8,500	40,200	1,400	
Computer/math scientists	51,200	42,700	8,500	39,400	900	1,300	9,300	200	
Life/related scientists	102,100	75,300	26,900	83,100	1,900	2,500	14,300	200	
Physical/related scientists	78,100	68,700	9,400	63,900	1,300	1,600	11,200	200	
Social/related scientists	112,200	69,900	42,200	98,800	4,100	3,100	5,400	800	
Engineers	68,500	63,900	4,600	46,800	900	1,600	19,000	200	

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1995.

Science & Engineering Indicators – 2002

Appendix table 3-44.

Individuals employed in S&E occupations by highest degree attained, occupation, sex, and race/ethnicity: 1993

Occupation	Employed S&Es, total	Sex		Race/ethnicity				Asian/Pacific Islander	Other
		Male	Female	White	Black	Hispanic			
All degree levels^a									
S&E occupations	3,303,400	2,547,900	755,500	2,777,500	119,400	97,200	299,300	10,000	
Scientists	1,912,300	1,276,400	635,900	1,612,100	79,800	53,800	160,500	6,100	
Computer/math scientists	991,500	686,100	305,400	827,700	44,500	26,300	90,600	2,400	
Life/related scientists	322,300	212,600	109,700	269,300	10,400	10,100	31,300	1,100	
Physical/related scientists	280,900	221,100	59,900	237,600	8,000	7,100	27,200	1,000	
Social/related scientists	317,600	156,600	160,900	277,500	16,800	10,300	11,400	1,600	
Engineers	1,391,100	1,271,500	119,600	1,165,400	39,700	43,400	138,800	3,900	
Bachelor's									
S&E occupations	1,980,300	1,553,200	427,200	1,700,100	83,400	62,600	127,600	6,600	
Scientists	1,007,000	664,900	342,100	859,100	52,000	31,100	61,000	3,800	
Computer/math scientists	676,200	457,700	218,500	574,800	34,500	19,800	45,300	1,900	
Life/related scientists	131,600	82,200	49,500	114,200	5,800	4,900	6,100	700	
Physical/related scientists	130,700	96,900	33,700	113,500	5,700	3,500	7,300	700	
Social/related scientists	68,500	28,200	40,300	56,600	6,000	3,000	2,300	600	
Engineers	973,300	888,200	85,100	841,000	31,400	31,500	66,600	2,700	
Master's									
S&E occupations	891,300	657,300	234,000	725,900	26,000	24,200	113,300	1,900	
Scientists	541,400	338,200	203,300	449,400	18,800	13,500	58,900	800	
Computer/math scientists	263,600	185,400	78,200	212,100	8,300	5,300	37,600	300	
Life/related scientists	70,400	40,500	29,900	57,400	2,700	1,900	8,300	S	
Physical/related scientists	72,600	55,600	17,000	61,100	1,200	1,900	8,200	S	
Social/related scientists	134,900	56,600	78,200	118,800	6,600	4,400	4,700	300	
Engineers	349,900	319,100	30,800	276,600	7,200	10,700	54,400	1,000	
Doctorate									
S&E occupations	395,600	311,500	84,100	321,300	9,000	9,100	54,800	1,400	
Scientists	330,500	250,000	80,600	275,900	8,000	8,000	37,400	1,300	
Computer/math scientists	48,700	40,400	8,300	38,500	1,200	1,300	7,600	200	
Life/related scientists	98,100	73,300	24,800	79,900	1,500	2,400	13,900	300	
Physical/related scientists	77,000	68,300	8,700	62,400	1,100	1,700	11,600	200	
Social/related scientists	106,700	68,000	38,700	95,100	4,100	2,600	4,300	700	
Engineers	65,000	61,500	3,500	45,400	1,000	1,100	17,500	100	

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

Appendix table 3-45.

Number, employment status, and median salary of 1997 and 1998 bachelor's and master's degree recipients, by field of degree: 1999

Field of degree	Primary education and employment status					
	Total recipients	Full-time student	Not full-time student			Median salary for full-time employed ^a
			Employed in science and engineering	Employed in other occupation	Not employed & not full-time student	
Bachelor's degree recipients						
All science and engineering fields	743,400	165,500	161,900	377,300	38,800	\$30,000
Total science	628,800	150,800	83,100	359,300	35,500	28,000
Computer and information sciences	46,000	S	27,000	15,100	S	44,000
Life and related sciences, total	164,000	54,300	20,900	79,100	9,800	25,000
Agricultural and food sciences	15,700	3,200	S	10,000	0	27,000
Biological sciences	134,900	48,800	16,200	62,000	7,800	25,000
Environmental life sciences including forestry science	13,500	2,300	3,000	7,100	S	26,000
Mathematical and related sciences	23,700	4,800	3,900	13,900	S	30,000
Physical and related sciences, total	36,500	12,600	11,100	11,900	1,000	29,000
Chemistry, except biochemistry	20,100	7,900	6,300	5,500	S	29,000
Earth sciences, geology, and oceanography	8,700	1,900	2,500	4,000	S	26,000
Physics and astronomy	7,200	2,600	2,200	2,200	S	35,000
Other physical sciences	600	S	S	S	S	S
Psychology	146,700	34,400	7,300	95,200	9,800	25,000
Social and related sciences, total	211,800	42,400	13,000	144,100	12,300	28,000
Economics	32,700	4,900	3,300	22,600	S	35,000
Political science and related sciences	71,700	20,500	4,100	42,300	4,700	29,000
Sociology and anthropology	69,500	11,700	S	51,600	S	25,000
Other social sciences	37,900	5,300	S	27,600	2,800	26,000
Total engineering	114,600	14,600	78,700	18,000	3,300	43,000
Aerospace and related engineering	2,400	500	1,300	500	S	41,000
Chemical engineering	12,400	1,900	8,500	1,600	S	45,000
Civil and architectural engineering	20,200	2,500	14,200	2,800	S	37,000
Electrical, electronic, computer and communications engineering	34,200	4,000	25,500	4,200	S	46,000
Industrial engineering	6,000	400	3,700	1,500	S	41,000
Mechanical engineering	26,300	2,600	18,500	4,600	S	43,000
Other engineering	13,200	2,700	7,200	2,800	S	40,000

See explanatory notes, if any, and SOURCE at end of table

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Appendix table 3-45.

Number, employment status, and median salary of 1997 and 1998 bachelor's and master's degree recipients, by field of degree: 1999

Field of degree	Primary education and employment status					
	Total recipients	Full-time student	Not full-time student			Median salary for full-time employed ^a
			Employed in science and engineering	Employed in other occupation	Not employed & not full-time student	
Master's degree recipients						
All science and engineering fields	157,000	32,100	71,800	46,300	6,800	\$46,000
Total science	110,400	24,300	39,400	41,200	5,500	40,000
Computer and information sciences	20,000	1,600	14,200	3,700	S	58,000
Life and related sciences, total	16,600	4,900	5,000	6,000	S	34,000
Agricultural and food sciences	2,300	S	S	S	S	35,000
Biological sciences	11,600	4,300	3,400	3,600	S	34,000
Environmental life sciences including forestry sciences	2,600	S	S	1,400	S	36,000
Mathematical and related sciences	7,200	1,800	3,200	1,700	S	44,000
Physical and related sciences, total	9,100	2,900	4,100	1,600	S	42,000
Chemistry, except biochemistry	3,700	1,200	1,700	S	S	43,000
Earth sciences, geology, and oceanography	3,000	600	1,600	600	S	37,000
Physics and astronomy	2,300	1,100	800	S	S	40,000
Other physical sciences	S	S	S	S	S	S
Psychology	30,000	6,900	7,700	13,200	2,200	32,000
Social and related sciences, total	27,500	6,200	5,100	14,900	1,300	40,000
Economics	4,300	1,300	S	1,600	S	45,000
Political science and related sciences	9,400	1,900	1,600	5,600	S	40,000
Sociology and anthropology	4,300	1,400	S	1,700	S	31,000
Other social sciences	9,500	1,500	S	6,100	S	38,000
Total engineering	46,700	7,900	32,500	5,100	1,300	55,000
Aerospace and related engineering	1,500	400	800	S	S	50,000
Chemical engineering	2,300	500	1,400	S	S	55,000
Civil and architectural engineering	6,600	S	4,700	S	S	45,000
Electrical, electronic, computer and communications engineering	16,300	2,400	12,500	1,000	S	60,000
Industrial engineering	3,600	S	2,400	S	S	55,000
Mechanical engineering	6,800	1,100	4,900	S	S	51,000
Other engineering	9,600	2,000	5,700	1,600	S	52,000

S = Suppressed for reasons of confidentiality and/or data reliability

^a Salary data for the following groups are not included in the table: self-employed persons, full-time students, and people whose principal job was less than 35 hours per week. Salary data are for principal job only.

NOTE: Details may not add to totals because of rounding.

SOURCE: National Science Foundation/Division of Science Resources Statistics, National Survey of Recent College Graduates, 1999.

Appendix table 3-46.

Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Total employed S&Es	Sector of employment		
		Business/ industry	Four-year college/ university	Other educational institution
All degree levels^a				
S&E occupations	60,000	65,000	48,000	45,000
Male	64,000	67,000	53,000	47,500
Female	50,000	55,000	38,000	43,000
White	61,000	65,000	50,000	45,000
Black	53,000	55,000	41,000	43,000
Hispanic	55,000	58,000	38,000	42,000
Asian/Pacific Islander	62,000	66,000	45,000	48,000
Other	52,000	55,000	48,000	43,100
Scientists, total	58,800	64,000	46,000	45,000
Male	62,000	67,000	51,000	47,600
Female	50,000	55,000	38,000	43,100
White	59,700	65,000	48,000	45,000
Black	50,000	52,000	41,000	43,000
Hispanic	51,000	58,000	37,000	42,000
Asian/Pacific Islander	60,000	66,000	42,000	52,000
Other	45,000	50,000	48,000	43,100
Computer/math scientists	64,000	66,000	49,000	43,200
Male	65,900	69,000	52,000	47,000
Female	58,000	60,000	45,000	43,000
White	65,000	67,000	48,000	43,000
Black	54,000	55,000	45,000	43,000
Hispanic	59,000	62,000	46,000	50,000
Asian/Pacific Islander	65,000	68,600	52,000	52,000
Other	54,000	55,000	28,800	S
Life/related scientists	47,700	53,000	42,000	42,000
Male	51,000	57,000	50,000	50,000
Female	39,000	47,300	32,000	37,000
White	49,000	52,000	45,000	40,000
Black	42,000	53,500	39,000	42,000
Hispanic	35,500	51,000	29,500	40,000
Asian/Pacific Islander	43,000	55,000	33,000	82,600
Other	39,000	36,000	38,800	S
Physical/related scientists	52,000	56,000	44,200	45,000
Male	56,000	61,200	48,500	45,000
Female	41,400	42,000	33,000	36,000
White	52,300	58,500	45,000	45,000
Black	43,000	43,000	38,000	41,000
Hispanic	43,000	40,000	37,900	70,000
Asian/Pacific Islander	53,400	60,000	42,000	43,000
Other	49,000	47,500	55,000	S
Social/related scientists	47,000	45,000	49,400	46,300
Male	54,000	60,000	55,000	48,000
Female	40,000	37,000	40,600	45,000
White	48,000	46,000	50,000	46,300
Black	40,000	30,000	41,000	49,000
Hispanic	40,000	35,000	41,000	42,000
Asian/Pacific Islander	48,000	47,500	50,000	50,000
Other	49,000	50,000	45,000	36,000
Engineers	65,000	65,000	59,000	44,000
Male	65,000	67,000	60,000	45,000
Female	55,500	56,000	38,000	31,200
White	65,000	65,200	60,000	43,000
Black	58,000	59,000	55,000	S
Hispanic	58,000	58,000	40,000	49,000
Asian/Pacific Islander	64,400	66,000	59,000	45,000
Other	60,000	57,000	44,000	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-46.

Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Total employed S&Es	Sector of employment			Government
		Business/ industry	Four-year college/ university	Other educational institution	
Bachelor's					
S&E occupations	59,000	60,000	28,200	40,000	55,000
Male	60,000	63,000	32,000	40,000	57,000
Female	50,000	53,000	25,200	36,000	48,000
White	60,000	62,000	29,000	39,000	55,000
Black	50,600	51,500	40,000	42,000	52,000
Hispanic	53,500	55,000	19,500	25,000	49,900
Asian/Pacific Islander	58,000	60,000	25,000	44,000	56,500
Other	46,000	47,500	S	S	43,500
Scientists	55,000	60,000	27,000	39,000	49,000
Male	60,000	63,000	28,000	40,000	50,000
Female	48,000	54,000	26,000	39,000	43,400
White	56,000	60,000	27,000	38,000	50,000
Black	48,000	50,000	30,000	41,000	46,300
Hispanic	50,000	56,000	19,500	25,000	45,000
Asian/Pacific Islander	55,000	60,000	25,000	40,000	50,000
Other	36,000	36,000	S	S	39,000
Computer/math scientists	60,800	64,000	45,000	40,000	54,000
Male	64,000	65,000	42,000	40,000	56,000
Female	56,000	58,600	48,000	42,300	48,000
White	62,200	65,000	43,000	40,000	54,000
Black	50,000	51,500	45,000	S	45,000
Hispanic	57,000	60,000	54,000	S	50,000
Asian/Pacific Islander	60,000	62,000	52,000	S	58,000
Other	35,000	35,000	S	S	S
Life/related scientists	37,000	43,000	20,000	36,000	42,500
Male	41,500	43,000	19,300	55,000	45,000
Female	33,600	44,000	21,000	22,000	36,000
White	38,000	45,000	20,000	36,000	44,000
Black	36,000	S	S	S	41,500
Hispanic	28,500	36,000	17,000	S	35,500
Asian/Pacific Islander	35,000	42,000	22,000	S	42,000
Other	36,000	S	S	S	39,000
Physical/related scientists	45,000	47,000	16,000	12,000	48,800
Male	47,000	50,000	16,000	S	47,000
Female	38,000	39,500	16,000	S	49,000
White	45,000	48,000	16,000	S	48,000
Black	43,000	41,700	S	S	50,000
Hispanic	37,000	36,000	15,000	S	49,000
Asian/Pacific Islander	41,400	45,000	22,000	S	52,000
Other	S	S	S	S	S
Social/related scientists	30,000	29,700	22,600	41,000	42,000
Male	35,000	28,500	24,000	S	50,000
Female	29,700	29,700	22,500	41,000	32,000
White	30,000	30,000	22,600	39,000	45,000
Black	30,000	28,000	S	S	58,000
Hispanic	27,000	24,000	S	S	42,000
Asian/Pacific Islander	30,000	35,000	S	S	30,000
Other	48,000	S	S	S	48,000
Engineers	60,000	61,300	46,000	43,000	60,000
Male	62,000	62,500	50,000	43,000	60,000
Female	52,000	52,000	19,000	30,000	55,700
White	62,000	62,000	46,000	43,000	60,000
Black	56,000	56,000	55,200	S	57,400
Hispanic	56,000	55,000	37,000	S	60,000
Asian/Pacific Islander	59,100	60,000	30,000	S	58,000
Other	60,000	58,100	S	S	63,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-46.

Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Total employed S&Es	Sector of employment			Government
		Business/ industry	Four-year college/ university	Other educational institution	
Master's					
S&E occupations	64,000	70,000	36,000	46,300	57,600
Male	68,000	72,000	40,000	48,800	60,000
Female	50,000	60,000	32,000	45,000	49,300
White	64,400	70,000	37,000	47,000	59,000
Black	54,000	62,000	30,900	42,000	50,000
Hispanic	58,000	65,000	34,000	50,000	58,000
Asian/Pacific Islander	65,300	69,000	40,000	60,000	60,000
Other	54,000	55,000	27,500	S	59,000
Scientists	60,000	67,000	35,000	46,300	52,000
Male	63,900	70,000	37,500	48,000	55,000
Female	48,000	57,700	32,000	45,000	49,000
White	58,000	68,000	35,500	46,300	53,000
Black	50,000	60,000	30,900	42,000	50,000
Hispanic	51,000	61,000	34,500	50,000	58,000
Asian/Pacific Islander	65,000	70,000	40,000	60,000	50,000
Other	52,500	55,000	27,500	S	35,000
Computer/math scientists	68,000	71,000	40,000	47,500	63,000
Male	70,000	74,000	42,000	48,800	63,200
Female	61,000	65,000	36,000	43,000	53,000
White	68,000	72,000	40,000	47,500	63,000
Black	60,000	64,000	32,000	42,000	59,000
Hispanic	66,000	73,500	39,000	52,000	65,000
Asian/Pacific Islander	70,000	70,000	50,000	60,000	51,000
Other	55,000	55,000	S	S	S
Life/ related scientists	43,800	50,000	33,000	40,000	49,000
Male	46,000	53,000	33,000	38,000	48,000
Female	41,000	44,200	32,000	42,000	49,000
White	45,000	50,000	33,000	40,000	49,000
Black	42,000	50,000	30,900	S	S
Hispanic	40,000	51,000	25,000	40,000	30,000
Asian/Pacific Islander	41,000	47,000	33,000	S	42,800
Other	S	S	S	S	S
Physical/related scientists	52,000	60,600	33,000	50,000	52,000
Male	58,000	65,900	34,000	50,000	57,000
Female	42,400	48,000	33,000	35,000	44,000
White	55,000	65,000	34,000	50,000	54,000
Black	44,700	52,500	28,000	S	35,000
Hispanic	36,000	39,000	26,000	S	48,000
Asian/Pacific Islander	50,000	55,000	33,000	S	50,000
Other	50,000	60,000	S	S	S
Social/related scientists	41,000	40,000	32,800	46,300	41,600
Male	47,500	50,000	35,000	49,000	45,000
Female	38,000	35,300	30,000	46,000	40,000
White	42,000	40,000	32,800	46,300	41,600
Black	35,000	32,500	24,000	48,500	37,500
Hispanic	42,000	38,000	45,000	42,000	60,000
Asian/Pacific Islander	48,000	46,000	26,400	S	S
Other	40,000	S	S	S	S
Engineers	70,000	72,000	52,000	51,000	63,400
Male	70,000	72,400	57,500	51,000	64,000
Female	61,000	63,000	29,000	S	60,000
White	71,000	73,000	53,000	51,000	64,500
Black	62,000	65,000	20,000	S	52,800
Hispanic	62,000	65,500	17,000	S	58,000
Asian/Pacific Islander	68,000	68,000	36,000	S	65,000
Other	60,000	56,000	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-46.

Median annual salaries of individuals in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1999
(Dollars)

Occupation, sex, and race/ethnicity	Total employed S&Es	Sector of employment			Government
		Business/ industry	Four-year college/ university	Other educational institution	
Doctorate					
S&E occupations	68,000	80,000	58,800	50,000	68,000
Male	71,000	82,000	61,400	53,000	70,000
Female	55,000	68,000	49,900	48,000	60,000
White	68,000	80,000	60,000	50,000	69,500
Black	60,000	72,000	55,000	57,800	60,000
Hispanic	58,000	75,000	50,000	40,000	65,000
Asian/Pacific Islander	70,000	76,700	52,000	52,000	65,000
Other	56,000	65,000	53,000	55,000	64,000
Scientists	65,000	79,000	56,000	50,000	67,000
Male	68,000	81,000	60,000	52,000	69,900
Female	55,000	67,000	49,000	48,000	60,000
White	65,000	80,000	58,000	50,000	68,000
Black	60,000	73,500	54,000	57,800	60,000
Hispanic	56,000	73,000	48,600	40,000	65,800
Asian/Pacific Islander	64,000	75,000	49,000	52,000	64,000
Other	55,000	65,000	52,000	55,000	68,000
Computer/math scientists	71,200	85,000	60,000	50,000	68,300
Male	75,000	86,000	60,000	50,000	69,600
Female	62,000	73,500	52,500	55,000	65,000
White	71,500	88,000	60,000	50,000	68,000
Black	71,000	83,000	71,000	S	51,500
Hispanic	60,800	78,000	50,900	S	112,700
Asian/Pacific Islander	73,000	80,000	55,000	52,000	73,500
Other	60,500	105,000	42,500	S	S
Life/related scientists	62,000	75,000	56,000	50,000	65,000
Male	65,000	78,000	60,000	56,000	69,000
Female	53,000	65,800	48,000	46,000	60,000
White	64,600	76,000	60,000	50,000	68,000
Black	51,000	71,000	42,000	36,000	67,000
Hispanic	58,000	75,000	45,500	57,000	52,000
Asian/Pacific Islander	54,300	72,000	40,000	80,000	58,000
Other	56,000	60,000	54,000	S	59,000
Physical/related scientists	70,000	80,000	58,400	45,000	76,800
Male	71,000	80,000	60,000	46,200	79,000
Female	61,000	72,700	47,000	41,000	61,000
White	70,400	83,000	60,000	46,000	78,000
Black	58,000	73,500	42,000	41,000	67,000
Hispanic	63,000	70,000	52,500	S	85,000
Asian/Pacific Islander	67,000	71,000	51,000	50,000	65,000
Other	61,000	72,000	61,000	S	83,000
Social/related scientists	60,000	75,000	55,000	51,300	60,000
Male	63,500	80,000	60,000	57,300	60,000
Female	52,000	60,000	49,000	50,000	58,000
White	60,000	75,000	55,000	51,300	60,000
Black	60,000	70,000	55,000	100,000	60,000
Hispanic	50,900	60,000	48,000	45,000	59,700
Asian/Pacific Islander	57,000	60,000	55,000	58,000	60,000
Other	53,000	80,000	45,000	S	100,000
Engineers	79,000	82,000	72,000	46,000	74,000
Male	80,000	83,000	73,000	58,000	75,000
Female	68,000	75,000	57,000	S	67,000
White	80,000	84,000	73,000	46,000	80,000
Black	67,000	70,000	56,000	S	70,300
Hispanic	65,000	80,000	55,000	S	62,000
Asian/Pacific Islander	77,000	80,000	71,500	55,000	65,000
Other	80,000	67,000	83,000	S	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-47.

Median annual salaries of individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Sector of employment			Government
		Business/ industry	Four-year college/ university	Other educational institution	
All degree levels^a					
S&E occupations	48,000	49,900	41,600	39,500	45,600
Male	50,000	50,400	45,200	41,000	47,000
Female	40,000	42,000	32,000	36,000	40,000
White	48,000	50,000	42,700	40,000	46,000
Black	40,000	42,000	37,000	34,000	40,900
Hispanic	43,000	45,000	32,000	36,000	42,000
Asian/Pacific Islander	48,000	50,000	36,000	34,500	47,000
Other	43,300	45,000	41,600	31,000	46,300
Scientists	44,900	47,000	40,000	39,500	42,000
Male	48,000	50,000	45,000	42,000	43,700
Female	39,000	41,000	32,000	36,000	39,000
White	45,000	48,000	42,000	40,000	42,700
Black	39,000	39,700	36,000	35,000	39,500
Hispanic	39,500	41,600	32,000	36,000	40,000
Asian/Pacific Islander	45,000	48,500	34,000	35,000	42,000
Other	41,600	37,000	41,600	31,000	46,300
Computer/math scientists	46,800	48,000	40,000	34,000	45,600
Male	49,000	50,000	42,400	38,100	47,600
Female	41,000	42,000	34,700	32,000	42,100
White	47,700	48,300	40,000	34,000	47,000
Black	40,000	40,000	33,000	35,000	42,000
Hispanic	42,000	42,200	37,800	39,500	44,000
Asian/Pacific Islander	47,000	48,000	40,000	35,000	43,500
Other	45,600	40,000	45,600	S	46,300
Life/related scientists	40,000	43,000	39,000	38,000	37,300
Male	42,500	45,000	46,000	40,000	38,100
Female	34,000	39,900	28,800	30,000	34,500
White	40,000	43,000	41,000	38,700	36,800
Black	37,000	40,000	30,000	31,000	39,500
Hispanic	35,000	39,000	26,800	28,600	37,000
Asian/Pacific Islander	39,900	49,600	28,100	S	42,000
Other	41,600	55,800	41,600	S	35,800
Physical/related scientists	45,000	48,000	40,000	42,000	44,000
Male	48,000	50,000	43,000	45,000	45,500
Female	37,500	39,700	30,000	28,000	39,000
White	45,800	48,000	43,000	42,000	44,300
Black	36,600	37,200	29,400	39,000	37,000
Hispanic	40,000	43,500	26,000	25,000	40,300
Asian/Pacific Islander	42,000	48,000	30,200	48,000	43,800
Other	35,000	35,000	43,200	S	44,300
Social/related scientists	40,300	38,000	42,300	42,000	40,000
Male	45,000	41,600	47,000	46,000	42,000
Female	36,400	36,000	36,000	39,000	36,000
White	41,000	38,000	43,000	42,100	40,000
Black	34,200	32,000	40,000	35,000	32,500
Hispanic	36,000	35,500	35,000	35,200	40,000
Asian/Pacific Islander	42,000	53,000	41,000	35,000	39,000
Other	40,900	20,000	41,400	31,000	52,400
Engineers	50,000	50,400	48,000	39,900	48,700
Male	51,000	52,000	49,000	39,600	49,500
Female	43,200	43,800	30,900	40,000	43,200
White	50,100	51,000	51,000	40,000	49,200
Black	44,600	45,800	40,000	S	43,100
Hispanic	47,000	47,200	34,000	S	46,800
Asian/Pacific Islander	50,000	51,400	44,000	26,400	49,400
Other	49,700	52,000	36,000	S	58,000

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-47.

Median annual salaries of individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Sector of employment			Government
		Business/ industry	Four-year college/ university	Other educational institution	
Bachelor's					
S&E occupations	45,000	46,000	28,000	35,500	44,000
Male	46,800	48,000	30,000	37,000	45,000
Female	38,000	39,600	24,000	31,200	39,000
White	45,000	46,800	28,000	36,000	44,300
Black	40,000	40,000	28,000	26,000	40,000
Hispanic	40,100	42,000	22,900	30,000	41,500
Asian/Pacific Islander	43,000	43,500	26,000	28,000	45,600
Other	42,500	41,600	41,600	S	46,300
Scientists	41,000	43,000	26,000	34,000	40,000
Male	43,300	45,000	27,000	35,000	40,300
Female	36,500	38,200	25,000	31,200	36,000
White	41,600	43,400	26,000	34,000	40,000
Black	36,500	38,000	26,000	24,000	37,000
Hispanic	36,000	39,000	25,200	28,400	37,000
Asian/Pacific Islander	40,800	42,000	24,000	28,000	40,000
Other	41,600	36,000	41,600	S	46,300
Computer/math scientists	44,000	45,000	36,800	34,000	44,000
Male	46,500	47,500	40,000	34,000	45,500
Female	40,000	40,000	33,000	32,300	40,000
White	45,000	45,300	37,000	34,000	45,500
Black	38,500	39,200	28,000	24,000	40,000
Hispanic	39,800	40,000	30,000	35,000	40,000
Asian/Pacific Islander	42,000	43,700	34,900	28,000	41,600
Other	44,700	37,000	S	S	46,300
Life/related scientists	32,200	36,000	19,200	36,000	33,400
Male	34,000	37,000	18,700	40,000	35,000
Female	30,000	35,400	19,200	26,000	29,100
White	32,200	36,000	19,200	36,000	33,000
Black	35,000	36,400	18,000	S	39,500
Hispanic	27,700	36,000	13,000	S	34,500
Asian/Pacific Islander	28,000	40,000	23,500	S	42,000
Other	41,600	S	S	S	S
Physical/related scientists	37,500	38,900	14,000	25,000	39,000
Male	38,900	40,000	14,000	25,000	40,000
Female	34,500	34,800	14,000	S	38,100
White	38,000	39,000	14,000	30,000	39,600
Black	36,000	36,500	15,600	S	36,000
Hispanic	30,000	40,000	S	S	30,000
Asian/Pacific Islander	33,300	33,300	12,800	S	36,600
Other	35,000	35,000	S	S	S
Social/related scientists	27,400	25,000	24,200	35,500	32,400
Male	30,000	30,000	26,000	63,600	32,400
Female	26,000	22,800	22,500	30,000	34,000
White	27,000	25,000	22,000	35,500	31,500
Black	28,700	27,000	29,100	16,800	34,000
Hispanic	28,500	27,000	29,700	S	38,400
Asian/Pacific Islander	30,000	32,000	13,800	S	S
Other	52,400	S	S	S	S
Engineers	48,000	48,800	37,100	39,900	47,100
Male	49,000	50,000	38,000	39,900	48,000
Female	41,600	41,600	14,400	40,000	42,600
White	48,900	49,600	38,000	40,000	48,000
Black	42,000	43,500	36,000	S	41,600
Hispanic	43,700	43,500	15,000	S	45,000
Asian/Pacific Islander	45,000	44,200	38,000	46,000	48,700
Other	49,700	54,600	S	S	45,800

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-47.

Median annual salaries of individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Sector of employment			Government
		Business/ industry	Four-year college/ university	Other educational institution	
Master's					
S&E occupations	50,000	55,000	31,200	40,000	48,000
Male	52,300	57,000	34,000	43,000	49,700
Female	42,000	48,000	29,500	37,000	40,000
White	50,400	55,000	32,000	41,000	48,000
Black	44,000	50,000	30,000	37,000	42,600
Hispanic	48,000	52,000	24,100	37,200	45,800
Asian/Pacific Islander	50,000	52,000	26,000	35,000	48,000
Other	42,000	50,000	S	S	42,000
Scientists	46,500	52,000	30,000	40,000	44,000
Male	50,000	55,100	30,200	43,000	45,800
Female	40,800	46,800	29,600	37,100	40,000
White	47,000	52,000	30,200	41,000	44,300
Black	40,000	47,500	30,000	37,000	40,100
Hispanic	40,000	46,000	22,000	37,200	41,600
Asian/Pacific Islander	47,700	50,000	26,000	35,000	45,000
Other	36,000	42,000	S	S	42,000
Computer/math scientists	50,800	55,000	34,700	37,000	48,000
Male	53,000	58,500	38,000	42,000	49,000
Female	45,000	50,000	29,500	31,500	44,000
White	52,000	56,000	34,000	37,000	48,100
Black	44,000	50,000	34,000	37,000	42,900
Hispanic	48,000	49,000	S	39,500	51,000
Asian/Pacific Islander	50,000	52,000	36,500	35,000	48,000
Other	42,000	S	S	S	S
Life/related scientists	38,000	46,400	28,000	35,500	41,200
Male	40,300	50,700	28,000	40,000	43,700
Female	34,700	42,000	27,600	30,000	37,000
White	38,300	47,000	28,000	35,600	42,000
Black	35,400	48,000	26,000	30,000	37,000
Hispanic	37,000	39,000	33,000	S	40,000
Asian/Pacific Islander	35,000	40,300	25,000	S	39,900
Other	S	S	S	S	S
Physical/related scientists	46,800	51,000	30,000	45,000	45,600
Male	48,000	52,000	30,000	45,200	47,000
Female	40,000	46,000	31,600	25,500	37,000
White	48,000	52,800	32,800	45,000	46,000
Black	39,000	40,000	S	S	41,100
Hispanic	39,000	43,500	13,500	S	41,600
Asian/Pacific Islander	40,000	45,500	15,000	S	48,000
Other	S	S	S	S	S
Social/related scientists	38,700	39,700	30,000	41,500	39,000
Male	40,000	40,000	30,000	45,000	40,000
Female	37,600	39,000	30,500	39,000	34,000
White	39,000	39,000	30,000	42,000	40,000
Black	32,000	32,000	40,000	37,100	31,000
Hispanic	35,000	35,000	15,100	36,000	33,800
Asian/Pacific Islander	39,000	58,000	27,000	S	39,000
Other	30,500	S	S	S	S
Engineers	55,200	57,000	43,000	38,100	53,000
Male	56,500	58,000	44,000	38,100	53,400
Female	48,100	50,000	27,000	S	47,300
White	56,200	57,600	46,000	38,400	53,000
Black	52,000	53,000	15,600	S	51,000
Hispanic	52,000	52,500	34,000	S	49,000
Asian/Pacific Islander	52,200	55,000	30,000	14,400	52,000
Other	49,000	50,000	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-47.

Median annual salaries of individuals employed in S&E occupations, by highest degree attained, occupation, sex, race/ethnicity, and employment sector: 1993
(Dollars)

Occupation, sex, and race/ethnicity	Employed S&Es, total	Sector of employment		
		Business/ industry	Four-year college/ university	Other educational institution
Doctorate				
S&E occupations	54,800	65,000	49,000	45,000
Male	57,000	66,600	50,400	45,700
Female	45,000	55,000	40,000	43,000
White	55,000	65,200	50,000	45,000
Black	46,200	64,000	44,000	42,000
Hispanic	50,000	58,000	43,000	43,000
Asian/Pacific Islander	54,000	62,000	42,000	42,000
Other	45,000	75,000	44,100	45,000
Scientists	52,000	63,000	48,000	45,000
Male	55,000	65,500	50,000	45,700
Female	44,300	53,000	40,000	43,000
White	52,500	64,800	49,000	45,000
Black	46,000	65,400	44,000	42,000
Hispanic	47,000	57,000	42,000	43,500
Asian/Pacific Islander	50,000	60,000	39,600	42,000
Other	44,900	78,000	43,300	S
Computer/math scientists	55,800	68,000	50,000	41,000
Male	57,600	70,000	50,000	45,700
Female	48,000	62,400	44,000	40,100
White	56,000	69,700	50,000	39,900
Black	45,000	75,000	44,000	41,000
Hispanic	47,000	45,000	48,000	S
Asian/Pacific Islander	56,300	65,000	46,000	37,000
Other	45,600	S	45,600	S
Life/related scientists	50,000	60,000	47,000	40,000
Male	53,000	62,000	50,000	43,000
Female	41,600	55,000	39,500	33,000
White	51,200	60,000	49,400	40,000
Black	46,200	68,600	44,000	42,000
Hispanic	40,000	60,000	33,600	S
Asian/Pacific Islander	44,000	58,200	33,000	S
Other	41,500	55,800	26,900	S
Physical/related scientists	58,000	65,300	48,900	44,000
Male	59,800	67,300	50,000	46,000
Female	48,000	55,200	36,400	43,000
White	60,000	68,000	50,000	46,000
Black	41,600	54,600	37,000	32,600
Hispanic	52,000	58,000	41,500	43,000
Asian/Pacific Islander	51,500	59,400	37,400	45,000
Other	57,500	68,200	57,500	S
Social/related scientists	49,000	56,500	47,000	46,800
Male	50,600	62,000	50,000	48,000
Female	44,000	50,000	41,000	43,900
White	49,300	56,500	47,500	47,000
Black	46,500	70,000	44,000	43,700
Hispanic	48,200	60,000	45,000	65,000
Asian/Pacific Islander	47,000	54,000	42,500	42,000
Other	43,800	S	42,200	S
Engineers	63,500	68,000	58,000	39,500
Male	64,000	69,000	59,000	40,000
Female	57,000	60,000	50,000	37,500
White	65,000	70,000	60,000	37,500
Black	50,000	63,000	40,000	S
Hispanic	60,000	60,000	52,000	S
Asian/Pacific Islander	60,500	65,000	52,000	S
Other	60,000	75,000	55,000	S

S = suppressed for reasons of confidentiality and/or data reliability

^aIncludes professional degrees.

NOTE: Median annual salaries are for full-time employment. Very large or very small values may reflect very small cell sizes and should be interpreted with caution.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1993.

Appendix table 3-48.

Individuals in the labor force with S&E highest degrees, by degree level, tenure status at four-year educational institutions, field of highest degree, and age: 1999

Field of degree	S&Es, total	Age (years)									
		Less than		All degree levels							
		25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
All S&E											
Engineering	1,967,100	39,000	221,700	254,800	327,200	323,800	235,900	224,300	151,000	105,300	84,200
Aerospace engineering	77,800	1,100	7,500	10,300	12,100	13,400	8,100	9,300	7,100	5,100	3,700
Chemical engineering	150,400	5,300	22,600	17,700	23,700	25,500	14,700	19,200	11,200	5,000	5,400
Civil engineering	332,600	6,500	38,000	34,400	44,500	56,800	46,600	43,200	24,600	20,400	17,500
Electrical engineering	598,100	10,100	63,800	90,000	107,700	100,200	72,500	61,500	44,100	28,400	19,900
Industrial engineering	107,400	1,600	12,600	15,800	19,400	17,900	9,600	12,200	8,700	4,600	5,100
Mechanical engineering	391,500	8,800	48,000	54,100	70,900	56,700	41,300	40,000	28,400	25,500	17,900
Other engineering	309,200	5,400	29,100	32,500	49,000	53,300	43,100	39,000	27,000	16,200	14,600
Life sciences											
Agriculture	232,200	4,300	24,900	21,100	36,200	46,400	39,300	25,100	14,400	11,900	8,600
Biological sciences	975,200	47,900	156,800	106,900	108,200	142,500	158,800	126,700	79,700	28,000	19,700
Health/medical	104,400	5,200	16,100	11,500	11,200	20,200	18,200	11,600	6,100	3,400	900
Computer/math sciences											
Computer sciences	593,700	13,800	68,300	105,200	146,100	112,400	76,900	44,800	17,800	7,500	S
Mathematical sciences	465,200	10,300	47,300	50,400	49,000	52,800	71,500	88,400	57,300	26,200	12,200
Physical sciences											
Chemistry	282,900	7,100	30,800	28,300	32,900	38,500	40,100	37,000	34,300	21,100	12,800
Geosciences	155,600	3,300	16,300	11,100	28,400	33,300	25,600	13,300	10,100	6,900	7,200
Physics/astronomy	147,000	3,200	13,600	16,400	18,000	19,600	17,500	20,500	19,100	11,300	7,900
Other physical sciences	49,900	300	4,700	4,500	5,600	8,900	10,100	6,100	4,000	2,400	3,300
Social sciences											
Economics	414,100	16,400	56,100	66,400	50,400	52,200	54,600	48,800	33,000	18,300	18,000
Political sciences	580,100	31,400	111,700	89,900	75,100	60,400	81,500	63,800	34,600	18,600	12,800
Psychology	1,195,400	56,300	201,200	135,400	104,000	152,800	210,200	178,000	83,900	40,600	33,100
Sociology/anthropology	605,900	24,300	110,700	58,000	46,100	70,700	111,700	100,300	51,700	18,400	13,900
Other social sciences	362,300	14,300	62,000	38,100	37,200	36,900	59,000	56,900	35,700	10,600	11,500

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-48.

Individuals in the labor force with S&E highest degrees, by degree level, tenure status at four-year educational institutions, field of highest degree, and age: 1999

Field of degree	S&Es, total	Age (years)										
		Less than										
		25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more	
Bachelor's												
All S&E												
Engineering	1,400,400	37,700	179,800	175,100	229,200	231,800	162,800	155,100	93,400	70,700	64,800	
Aerospace engineering	54,400	1,000	5,700	7,300	9,000	10,100	5,400	7,200	3,800	2,500	2,300	
Chemical engineering	113,600	5,300	20,000	13,500	17,500	20,200	9,500	13,900	6,800	3,000	3,900	
Civil engineering	248,300	6,300	32,000	25,800	33,300	43,100	34,100	31,600	13,700	14,100	14,300	
Electrical engineering	416,000	9,700	50,000	59,600	72,000	69,600	51,300	41,900	28,500	19,300	14,100	
Industrial engineering	80,400	1,600	10,800	10,500	14,900	12,700	6,400	9,800	6,300	3,800	3,600	
Mechanical engineering	308,600	8,800	40,200	41,000	55,100	44,500	31,700	31,100	22,100	18,900	15,200	
Other engineering	179,100	5,100	21,000	17,500	27,400	31,600	24,400	19,600	12,100	9,000	11,400	
Life sciences												
Agriculture	183,200	4,300	23,100	15,800	30,000	37,600	29,300	17,500	10,800	8,400	6,400	
Biological sciences	702,200	47,200	147,300	82,000	72,100	99,600	111,100	81,500	38,800	12,000	10,600	
Health/medical	80,600	5,200	15,000	8,900	7,300	15,600	14,100	8,400	3,200	2,500	S	
Computer/math sciences												
Computer sciences	418,400	13,600	54,700	80,700	114,300	75,100	48,100	21,900	7,700	2,300	S	
Mathematical sciences	333,300	10,000	40,100	39,100	35,500	37,900	52,400	62,900	33,300	15,000	7,100	
Physical sciences												
Chemistry	179,900	7,000	25,900	19,200	20,000	22,800	24,200	23,000	18,000	12,600	7,200	
Geosciences	103,700	3,300	13,600	7,600	20,300	23,900	15,400	6,800	4,200	4,600	3,900	
Physics/astronomy	69,100	3,200	11,200	8,300	8,000	9,000	8,300	7,100	6,700	4,900	2,400	
Other physical sciences	37,800	300	4,500	4,100	3,500	6,300	8,000	4,600	1,900	S	3,000	
Social sciences												
Economics	346,900	16,300	52,300	59,300	44,400	42,900	44,100	35,800	25,600	11,500	14,800	
Political sciences	494,100	31,100	104,000	77,900	65,000	51,400	67,700	48,800	24,900	14,400	8,800	
Psychology	817,200	55,900	180,400	106,600	74,600	103,000	132,900	91,400	38,400	17,300	16,600	
Sociology/anthropology	537,600	24,300	105,000	52,500	40,800	62,100	98,700	89,000	40,700	13,700	10,800	
Other social sciences	277,300	14,200	56,400	29,900	29,500	28,900	44,500	40,900	20,900	5,600	6,500	

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-48.

Individuals in the labor force with S&E highest degrees, by degree level, tenure status at four-year educational institutions, field of highest degree, and age: 1999

Field of degree	S&Es, total	Age (years)									
		Less than		Master's							
		25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
All S&E											
Engineering	459,200	1,300	39,300	66,100	79,400	74,900	60,100	56,100	42,900	24,800	14,300
Aerospace engineering	18,400	100	1,600	2,200	2,500	2,500	2,300	1,700	2,700	1,700	1,000
Chemical engineering	22,800	S	2,200	2,400	3,800	2,800	4,000	3,700	2,200	900	900
Civil engineering	74,200	S	5,800	8,000	9,700	12,400	11,300	10,000	9,000	5,200	2,500
Electrical engineering	153,400	400	13,000	26,400	30,200	26,100	17,700	16,200	12,100	6,500	4,700
Industrial engineering	23,700	S	1,800	4,800	4,000	4,600	2,800	2,200	1,900	S	S
Mechanical engineering	69,200	S	7,400	11,100	13,000	9,600	8,000	7,200	4,900	5,700	2,200
Other engineering	97,400	300	7,400	11,200	16,200	17,000	14,000	15,100	10,200	4,400	1,700
Life sciences											
Agriculture	30,700	S	1,800	3,900	3,700	5,400	6,200	5,100	1,200	2,200	1,300
Biological sciences	117,900	700	7,000	10,700	14,700	17,200	20,700	20,200	19,500	5,800	1,300
Health/medical	18,300	S	1,100	2,100	3,400	3,700	3,100	2,100	1,900	S	S
Computer/math sciences											
Computer sciences	163,200	S	13,400	23,200	29,000	34,200	26,200	21,300	9,600	5,300	S
Mathematical sciences	103,200	300	5,900	9,000	10,200	11,300	15,400	20,800	18,200	8,300	3,800
Physical sciences											
Chemistry	38,000	S	3,400	3,700	3,200	5,300	6,500	5,300	6,600	2,300	1,600
Geosciences	34,600	S	2,600	2,700	5,600	6,800	7,600	2,900	3,500	600	2,200
Physics/astronomy	32,600	S	1,700	3,800	3,500	4,100	3,600	6,400	5,400	1,800	2,200
Other physical sciences	10,100	S	200	300	1,700	2,200	1,800	1,400	1,800	S	S
Social sciences											
Economics	44,400	S	3,700	5,100	3,600	5,900	7,200	8,700	3,700	4,800	1,700
Political sciences	69,100	300	7,600	10,800	8,300	7,100	11,200	11,800	6,700	2,700	2,500
Psychology	281,800	S	19,300	22,400	19,800	35,600	58,400	65,900	32,700	16,200	11,100
Sociology/anthropology	44,900	S	5,700	4,600	3,400	5,700	8,400	6,400	6,400	2,600	S
Other social sciences	69,500	S	5,600	7,800	6,200	5,800	11,700	13,000	11,700	3,400	4,200

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-48.

Individuals in the labor force with S&E highest degrees, by degree level, tenure status at four-year educational institutions, field of highest degree, and age: 1999

Field of degree	S&Es, total	Age (years)									
		Less than		Doctorate							
		25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Doctorate											
All S&E	623,400	S	10,100	54,200	85,000	96,900	99,900	101,400	91,300	50,500	34,200
Engineering	107,400	S	2,600	13,600	18,600	17,100	13,000	13,200	14,700	9,800	5,000
Aerospace engineering	4,900	S	200	800	600	700	400	400	600	800	400
Chemical engineering	14,000	S	400	1,800	2,400	2,500	1,300	1,600	2,200	1,100	600
Civil engineering	10,100	S	200	700	1,500	1,300	1,200	1,600	1,900	1,100	700
Electrical engineering	28,700	S	800	4,000	5,500	4,500	3,400	3,300	3,500	2,600	1,100
Industrial engineering	3,300	S	S	400	500	700	400	200	500	400	200
Mechanical engineering	13,700	S	300	2,000	2,700	2,600	1,600	1,800	1,300	900	500
Other engineering	32,700	S	700	3,900	5,400	4,700	4,700	4,300	4,700	2,900	1,400
Life sciences	178,400	S	2,500	15,700	24,500	29,800	31,900	28,700	24,900	11,700	8,800
Agriculture	18,300	S	S	1,400	2,500	3,400	3,900	2,500	2,400	1,300	800
Biological sciences	155,000	S	2,500	14,100	21,400	25,600	27,000	25,000	21,500	10,200	7,800
Health/medical	5,100	S	S	300	500	700	1,000	1,100	1,000	200	200
Computer/math sciences	40,800	S	1,500	3,700	6,000	6,600	6,200	6,300	6,200	2,900	1,300
Computer sciences	12,100	S	200	1,400	2,800	3,100	2,600	1,600	400	S	S
Mathematical sciences	28,700	S	1,300	2,400	3,200	3,600	3,700	4,700	5,800	2,900	1,200
Physical sciences	128,500	S	2,300	10,300	18,900	20,000	17,800	19,000	19,300	12,600	8,300
Chemistry	65,000	S	1,500	5,300	9,700	10,500	9,400	8,800	9,700	6,200	4,000
Geosciences	17,000	S	100	700	2,300	2,700	2,600	3,600	2,300	1,700	1,000
Physics/astronomy	44,500	S	600	4,000	6,500	6,500	5,500	6,400	7,000	4,600	3,400
Other physical sciences	2,000	S	S	200	400	400	300	200	300	S	S
Social sciences	168,300	S	1,200	10,800	17,000	23,500	31,000	34,200	26,300	13,500	10,800
Economics	22,800	S	100	2,000	2,400	3,500	3,300	4,300	3,700	1,900	1,600
Political sciences	16,800	S	S	1,200	1,900	1,900	2,600	3,200	3,000	1,400	1,600
Psychology	89,700	S	1,000	6,200	9,300	13,100	17,700	18,700	11,800	6,600	5,400
Sociology/anthropology	23,400	S	S	1,000	1,900	2,900	4,500	5,000	4,600	2,100	1,400
Other social sciences	15,500	S	S	500	1,500	2,100	2,900	3,000	3,200	1,500	800

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-48.

Individuals in the labor force with S&E highest degrees, by degree level, tenure status at four-year educational institutions, field of highest degree, and age: 1999

Field of degree	S&Es, total	Age (years)									
		Less than 25		25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64
Tenured or tenure-track Ph.D. holders at 4-year educational institutions											
All S&E	160,200	S	500	8,100	18,700	25,100	26,000	26,800	28,500	16,600	9,900
Engineering	19,400	S	S	1,300	2,600	3,400	2,900	2,700	2,700	2,700	1,100
Aerospace engineering	900	S	S	S	100	S	S	S	S	200	S
Chemical engineering	1,600	S	S	100	100	400	200	100	300	300	S
Civil engineering	2,800	S	S	200	400	500	200	500	400	400	200
Electrical engineering	4,900	S	S	200	700	1,000	700	700	500	800	300
Industrial engineering	1,100	S	S	100	100	300	200	S	200	S	S
Mechanical engineering	2,400	S	S	100	500	400	400	400	200	300	S
Other engineering	5,700	S	S	500	700	800	1,100	900	1,000	500	300
Life sciences	48,100	S	S	1,600	5,300	8,400	9,100	8,900	8,200	3,700	2,800
Agriculture	5,100	S	S	200	500	900	1,100	800	900	400	200
Biological sciences	41,800	S	S	1,300	4,700	7,300	7,800	7,900	7,000	3,200	2,500
Health/medical	1,200	S	S	S	100	200	200	200	300	S	S
Computer/math sciences	15,400	S	100	1,000	2,200	2,400	2,300	2,400	2,800	1,500	700
Computer sciences	3,000	S	S	300	800	800	600	300	200	S	S
Mathematical sciences	12,400	S	S	700	1,400	1,600	1,700	2,100	2,600	1,500	700
Physical sciences	23,300	S	100	1,300	2,900	3,800	2,500	3,000	4,400	3,400	1,700
Chemistry	10,500	S	100	900	1,300	1,600	1,100	1,200	2,000	1,500	700
Geosciences	4,300	S	S	100	600	900	700	500	600	600	300
Physics/astronomy	8,200	S	S	300	1,000	1,200	600	1,200	1,800	1,300	700
Other physical sciences	300	S	S	S	S	S	S	S	S	S	S
Social sciences	54,000	S	100	2,900	5,600	7,000	9,100	9,800	10,400	5,500	3,600
Economics	10,400	S	S	500	1,000	1,500	1,700	1,900	2,000	1,000	700
Political sciences	8,500	S	S	500	900	1,100	1,200	1,700	1,500	800	600
Psychology	17,600	S	S	1,100	1,900	2,200	3,100	3,300	3,000	1,600	1,300
Sociology/anthropology	10,700	S	S	500	900	1,400	1,800	1,800	2,400	1,200	700
Other social sciences	6,700	S	S	200	800	800	1,200	1,200	1,400	800	300

S = suppressed for reasons of confidentiality and/or data reliability

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-49.

Individuals in the labor force with any S&E degrees, by degree level, tenure status at four-year educational institutions, occupation, and age: 1999

Occupation	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
		All degree levels									
S&E occupations^a	3,311,200	85,400	420,000	444,200	547,400	521,900	437,100	378,300	246,400	137,700	92,700
Engineers	1,314,800	26,700	156,300	171,200	222,200	215,100	156,200	150,200	99,400	69,600	48,000
Aerospace/related engineers	65,900	900	4,500	5,400	12,700	12,100	6,700	8,500	6,600	5,400	3,100
Chemical engineers	81,500	2,200	12,600	10,100	12,800	15,200	7,300	9,500	5,900	3,700	2,300
Civil/architectural engineers.....	220,800	4,200	28,900	23,900	33,400	37,100	26,900	29,200	15,600	11,500	10,100
Electrical/related engineers	342,900	5,800	36,800	45,800	62,100	57,900	41,800	35,900	27,100	17,700	12,000
Industrial engineers	71,500	1,400	13,200	12,000	12,200	8,400	8,100	8,400	3,400	2,300	2,000
Mechanical engineers	249,700	6,200	31,200	38,200	44,900	35,400	28,200	24,700	18,800	13,000	9,100
Other engineers	252,100	4,400	26,200	32,900	39,900	45,200	33,900	30,700	19,000	12,700	7,100
Postsecondary teachers	30,500	1,500	2,900	2,900	4,000	3,800	3,400	3,200	3,100	3,300	2,400
Life/related scientists	327,700	14,400	41,600	41,600	49,600	49,200	45,300	37,400	26,300	13,200	9,000
Agricultural/food scientists	37,500	900	4,200	4,000	4,600	6,800	8,900	3,100	1,900	2,500	600
Biological scientists	200,500	11,600	30,200	32,700	32,900	28,100	23,400	19,300	14,300	4,300	3,800
Environmental life scientists	17,400	S	2,000	1,100	2,700	2,100	2,500	3,100	1,300	1,400	S
Postsecondary teachers	72,300	1,600	5,200	3,700	9,500	12,200	10,600	11,900	8,800	5,000	3,800
Computer/math scientists	1,019,600	23,800	130,900	155,600	197,500	167,600	142,900	107,500	60,300	23,100	10,300
Computer/information scientists	920,700	21,000	120,100	144,400	186,000	156,800	129,900	93,100	46,900	16,400	6,100
Mathematical scientists	34,100	800	5,400	5,300	5,500	3,400	4,100	4,800	3,000	1,100	600
Postsecondary teachers	64,800	1,900	5,400	5,900	6,000	7,400	9,000	9,600	10,400	5,500	3,700
Physical/related scientists	299,900	8,400	39,600	35,000	44,900	45,900	39,500	32,300	27,400	15,200	11,600
Chemistry, except biochemistry	124,100	3,900	17,200	16,500	19,500	18,100	15,000	12,200	11,800	6,000	3,800
Earth scientists/ geologists/oceanographers	73,600	800	7,600	4,500	15,400	15,800	12,000	7,100	5,600	2,100	2,700
Physicists/astronomers.....	30,300	600	3,100	6,100	3,900	3,400	3,500	3,700	2,600	2,000	1,400
Other physical/related scientists	21,700	500	5,400	3,300	1,200	3,000	3,100	3,600	1,200	200	200
Postsecondary teachers	50,200	2,600	6,400	4,600	4,800	5,600	6,000	5,600	6,100	4,900	3,600
Social/related scientists	349,200	12,100	51,400	40,800	33,200	44,200	53,100	50,900	33,100	16,500	13,700
Economists	32,800	1,900	4,200	3,500	4,300	5,300	4,100	5,900	2,200	800	600
Political/related scientists	11,600	2,100	4,800	1,300	800	S	S	1,400	400	200	S
Psychologists	190,500	3,700	23,700	21,800	17,400	24,900	31,300	30,900	19,200	9,700	7,900
Sociologists/anthropologists	18,100	S	4,800	3,900	1,600	1,200	4,200	1,100	700	100	100
Other social/related scientists ...	12,900	1,700	3,200	1,400	700	2,100	1,500	1,000	500	200	S

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-49.

Individuals in the labor force with any S&E degrees, by degree level, tenure status at four-year educational institutions, occupation, and age: 1999

Occupation	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Bachelor's											
S&E occupations	1,815,700	82,500	316,900	253,900	306,000	283,100	212,200	167,300	93,500	58,000	42,400
Engineers	854,600	26,000	124,900	108,200	140,100	139,100	98,000	92,500	51,800	41,200	33,000
Aerospace/related engineers	34,700	800	2,900	2,900	7,100	6,300	3,400	4,000	2,200	2,400	2,700
Chemical engineers	51,600	2,200	10,800	6,900	6,400	9,400	4,100	6,100	2,000	2,200	1,400
Civil/architectural engineers.....	157,500	4,100	24,700	17,900	23,300	26,300	17,900	20,700	7,700	6,700	8,100
Electrical/related engineers	216,700	5,500	27,300	24,600	36,400	39,200	26,100	22,200	15,300	12,100	8,100
Industrial engineers	55,000	1,400	11,500	8,500	8,800	5,700	7,000	5,900	2,800	2,000	S
Mechanical engineers	178,700	6,200	25,300	26,600	32,400	23,900	19,400	16,200	12,700	9,400	6,600
Other engineers	154,700	4,300	20,800	20,500	25,400	28,100	19,500	17,000	8,700	5,900	4,500
Postsecondary teachers	5,600	1,500	1,800	S	S	S	S	S	S	S	S
Life/related scientists	126,300	13,700	32,500	19,900	14,100	13,800	14,600	8,300	5,700	2,200	S
Agricultural/food scientists	17,700	900	3,300	1,800	2,300	2,600	4,400	S	S	S	S
Biological scientists	84,500	10,900	23,200	15,900	8,700	8,500	7,100	4,800	4,300	S	S
Environmental life scientists	12,400	S	1,600	S	2,000	S	S	1,600	S	S	S
Postsecondary teachers	11,700	1,600	4,300	1,300	1,200	S	S	S	S	S	S
Computer math scientists	623,500	23,100	100,300	99,200	127,100	102,300	82,200	50,700	24,800	10,600	3,300
Computer/information scientists	602,400	20,700	94,600	95,900	125,300	100,800	80,700	49,600	23,100	8,700	3,000
Mathematical scientists	10,200	500	2,600	2,200	S	S	S	S	S	S	S
Postsecondary teachers	11,000	1,800	3,000	S	S	S	S	S	S	S	S
Physical/related scientists	140,200	8,100	31,600	18,300	20,400	20,000	12,600	11,900	9,800	3,600	3,900
Chemistry, except biochemistry	71,500	3,800	14,000	11,400	11,100	8,900	5,900	6,600	5,900	2,400	1,600
Earth scientists/ geologists/oceanographers	38,000	800	5,900	1,900	7,900	9,000	4,300	2,600	3,400	S	1,500
Physicists/astronomers.....	7,200	600	1,900	1,800	800	S	S	S	S	S	S
Other physical/related scientists	12,500	S	4,700	1,600	S	1,600	1,500	2,500	S	S	S
Postsecondary teachers	10,900	2,600	5,100	1,600	S	S	S	S	S	S	S
Social/related scientists	71,100	11,600	27,700	8,400	4,300	7,900	4,900	4,000	S	S	S
Economists	10,200	1,700	2,600	S	S	2,100	S	S	S	S	S
Political/related scientists	5,800	2,000	2,400	S	S	S	S	S	S	S	S
Psychologists	33,100	3,700	13,200	5,400	3,000	3,400	S	S	S	S	S
Sociologists/anthropologists	7,500	S	2,500	2,400	S	S	S	S	S	S	S
Other social/related scientists ...	4,500	1,700	1,900	S	S	S	S	S	S	S	S
Postsecondary teachers	10,100	2,200	5,100	S	S	S	S	S	S	S	S

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 3-49.

Individuals in the labor force with any S&E degrees, by degree level, tenure status at four-year educational institutions, occupation, and age: 1999

Occupation	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Master's											
S&E occupations	989,800	2,900	93,800	141,900	167,100	154,500	144,700	132,600	85,900	42,200	24,100
Engineers	373,200	700	29,200	51,400	67,100	61,300	48,200	46,900	36,400	21,300	10,800
Aerospace/related engineers	26,300	100	1,500	1,800	5,100	5,000	2,700	3,700	3,900	2,400	S
Chemical engineers	21,400	S	1,400	1,600	4,800	4,200	2,500	2,400	2,800	1,100	S
Civil/architectural engineers.....	57,600	S	3,900	5,700	9,300	9,700	8,300	7,600	7,100	4,400	1,500
Electrical/related engineers	107,400	300	9,000	18,000	22,000	15,900	13,600	11,600	9,200	4,400	3,300
Industrial engineers	15,400	S	1,800	3,300	3,200	2,500	1,000	2,400	S	S	S
Mechanical engineers	61,500	S	5,800	10,000	10,800	9,700	7,800	7,200	4,900	2,900	2,200
Other engineers	78,100	S	4,900	9,700	10,900	14,000	12,100	11,400	7,800	5,400	1,800
Postsecondary teachers	5,600	S	900	1,000	1,000	S	S	S	S	S	S
Life/related scientists	69,300	S	7,000	9,000	14,000	11,700	8,800	9,900	5,200	2,900	S
Agricultural/food scientists	10,400	S	900	1,400	800	2,600	2,700	S	S	S	S
Biological scientists	40,400	S	4,900	6,200	9,400	6,700	4,500	4,700	2,900	S	S
Environmental life scientists	3,800	S	S	S	S	S	S	1,200	S	S	S
Postsecondary teachers	14,700	S	800	1,200	3,200	1,900	1,300	3,700	1,600	900	S
Computer/math scientists	326,800	700	28,800	49,500	59,600	53,300	50,200	45,700	25,800	8,300	4,900
Computer/information scientists	283,000	300	24,800	44,200	53,800	48,600	44,000	38,300	20,200	6,100	2,800
Mathematical scientists	16,200	S	2,300	2,100	3,300	1,400	2,200	3,100	S	S	S
Postsecondary teachers	27,600	S	1,700	3,300	2,600	3,300	3,900	4,400	4,500	2,100	1,800
Physical/related scientists	73,400	300	6,300	8,900	11,000	11,700	14,400	8,700	6,500	3,000	2,600
Chemistry, except biochemistry	23,800	S	2,300	1,900	3,100	3,900	4,900	2,400	2,800	1,400	1,000
Earth scientists/ geologists/oceanographers	24,600	S	1,600	1,900	5,700	5,200	5,700	2,400	1,100	500	S
Physicists/astronomers.....	8,200	S	900	2,200	700	700	1,000	1,800	500	S	S
Other physical/related scientists	7,300	S	600	1,700	800	1,200	1,300	S	S	S	S
Postsecondary teachers	9,400	S	1,000	1,200	700	600	1,400	1,400	1,100	1,000	S
Social/related scientists	147,100	500	22,600	23,100	15,400	16,600	23,100	21,500	11,900	6,800	5,600
Economists	14,600	S	1,500	2,400	2,700	1,800	2,000	2,300	1,300	S	S
Political/related scientists	4,400	S	2,400	1,100	S	S	S	S	S	S	S
Psychologists	96,200	S	9,900	12,400	8,300	12,400	17,300	17,400	9,000	5,300	4,300
Sociologists/anthropologists	6,800	S	2,200	1,300	1,200	S	1,300	S	S	S	S
Other social/related scientists ...	5,900	S	1,300	1,200	S	S	S	S	S	S	S
Postsecondary teachers	19,200	S	5,300	4,800	2,600	1,200	1,300	700	1,300	S	S

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-49.

Individuals in the labor force with any S&E degrees, by degree level, tenure status at four-year educational institutions, occupation, and age: 1999

Occupation	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
		Doctorate									
S&E occupations	480,600	S	9,000	47,100	72,700	78,200	74,500	73,500	64,600	36,500	24,300
Engineers	85,000	S	2,200	11,400	15,000	13,500	10,000	10,600	11,000	7,200	4,200
Aerospace/related engineers	4,700	S	200	500	600	900	600	700	400	600	200
Chemical engineers	8,400	S	300	1,500	1,600	1,600	700	900	1,100	400	300
Civil/architectural engineers.....	5,200	S	S	300	900	600	700	800	800	400	400
Electrical/related engineers	17,800	S	500	3,100	3,700	2,300	2,000	2,000	2,400	1,300	500
Industrial engineers	1,100	S	S	100	200	200	100	200	S	S	S
Mechanical engineers	9,300	S	200	1,500	1,700	1,600	1,000	1,200	1,200	700	200
Other engineers	19,300	S	600	2,700	3,700	3,000	2,200	2,300	2,500	1,400	900
Postsecondary teachers	19,300	S	S	1,600	2,700	3,200	2,700	2,500	2,500	2,400	1,600
Life/related scientists	121,600	S	2,000	12,500	20,900	21,600	19,800	17,100	14,900	7,200	5,600
Agricultural/food scientists	9,300	S	S	800	1,500	1,600	1,700	1,400	1,100	600	400
Biological scientists	70,900	S	1,900	10,400	14,100	12,500	10,800	8,800	6,800	2,900	2,500
Environmental life scientists	1,200	S	S	S	100	200	200	200	200	100	S
Postsecondary teachers	40,200	S	S	1,200	5,200	7,200	7,000	6,700	6,800	3,500	2,600
Computer/math scientists	64,800	S	1,900	6,500	10,200	10,300	9,800	10,600	9,300	4,100	2,200
Computer/information scientists	31,000	S	700	3,800	6,300	5,700	4,300	5,000	3,200	1,700	300
Mathematical scientists	7,700	S	500	1,100	1,000	1,200	1,200	1,200	900	400	200
Postsecondary teachers	26,100	S	700	1,600	2,900	3,300	4,300	4,500	5,100	2,100	1,600
Physical/related scientists	85,900	S	1,800	7,700	13,200	14,200	12,600	11,700	11,100	8,600	5,000
Chemistry, except biochemistry	28,700	S	1,000	3,100	5,300	5,400	4,100	3,200	3,200	2,200	1,200
Earth scientists/ geologists/oceanographers	10,700	S	100	700	1,500	1,600	2,000	2,200	1,000	900	600
Physicists/astronomers	15,000	S	300	2,200	2,400	2,500	2,100	1,700	1,700	1,300	700
Other physical/related scientists	1,800	S	S	100	200	200	300	400	200	200	200
Postsecondary teachers	29,800	S	300	1,600	3,800	4,600	4,100	4,200	4,900	3,900	2,200
Social/related scientists	123,400	S	1,200	9,100	13,500	18,600	22,400	23,500	18,400	9,400	7,400
Economists	8,000	S	S	1,100	900	1,400	1,000	1,800	800	500	300
Political/related scientists	1,200	S	S	200	200	S	S	200	200	200	S
Psychologists	57,000	S	600	3,800	6,000	8,400	11,400	10,900	8,800	4,000	3,100
Sociologists/anthropologists	3,800	S	S	200	400	700	900	800	500	100	100
Other social/related scientists ...	2,500	S	S	200	200	300	400	800	200	200	S
Postsecondary teachers	51,000	S	500	3,600	5,800	7,800	8,600	8,900	7,900	4,400	3,700

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-49.

Individuals in the labor force with any S&E degree, by degree level, tenure status at four-year educational institutions, occupation, and age: 1999

Occupation	S&Es, total	Age (years)									
		Under 25	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65 or more
Tenured or tenure-track Ph.D. holders at 4-year educational institutions											
S&E occupations	135,200	S	500	7,400	16,800	22,400	21,600	21,400	22,900	13,700	8,400
Engineers	17,200	S	S	1,400	2,400	3,100	2,300	2,300	2,300	2,300	1,100
Aerospace/related engineers	S	S	S	S	S	S	S	S	S	S	S
Chemical engineers	S	S	S	S	S	S	S	S	S	S	S
Civil/architectural engineers.....	200	S	S	S	S	S	S	S	S	S	S
Electrical/related engineers	200	S	S	S	S	S	S	S	S	S	S
Industrial engineers	S	S	S	S	S	S	S	S	S	S	S
Mechanical engineers	300	S	S	S	S	S	S	S	S	S	S
Other engineers	800	S	S	100	200	S	S	200	S	S	S
Postsecondary teachers	15,500	S	S	1,200	2,200	2,900	2,100	2,000	2,200	1,900	1,000
Life/related scientists	37,400	S	S	1,200	4,400	7,100	7,100	6,100	6,300	2,900	2,400
Agricultural/food scientists	1,400	S	S	S	100	300	400	200	200	100	S
Biological scientists	7,200	S	S	300	1,300	1,300	1,400	1,200	900	400	400
Environmental life scientists	200	S	S	S	S	S	S	S	S	S	S
Postsecondary teachers	28,600	S	S	700	3,000	5,500	5,300	4,700	5,200	2,300	1,900
Computer/math scientists	16,700	S	100	1,000	2,300	2,600	2,600	2,900	3,000	1,500	700
Computer/information scientists	200	S	S	S	S	S	S	S	S	S	S
Mathematical scientists	300	S	S	S	S	S	S	S	S	S	S
Postsecondary teachers	16,100	S	100	1,000	2,200	2,500	2,500	2,700	3,000	1,500	600
Physical/related scientists	22,200	S	100	1,200	2,900	3,700	2,800	2,900	3,900	3,100	1,500
Chemistry, except biochemistry	300	S	S	S	S	S	S	S	S	S	S
Earth scientists/ geologists/oceanographers	500	S	S	S	S	S	S	S	S	100	S
Physicists/astronomers.....	600	S	S	S	S	S	S	S	S	S	S
Other physical/related scientists	S	S	S	S	S	S	S	S	S	S	S
Postsecondary teachers	20,800	S	100	1,100	2,800	3,500	2,600	2,700	3,700	2,800	1,400
Social/related scientists	41,800	S	200	2,600	4,700	6,000	7,000	7,400	7,400	3,900	2,800
Economists	600	S	S	S	S	100	S	200	S	S	S
Political/related scientists	100	S	S	S	S	S	S	S	S	S	S
Psychologists	1,400	S	S	100	200	200	200	400	200	S	100
Sociologists/anthropologists	500	S	S	S	S	100	S	200	S	S	S
Other social/related scientists ...	100	S	S	S	S	S	S	S	S	S	S
Postsecondary teachers	38,900	S	200	2,400	4,300	5,600	6,500	6,500	7,100	3,800	2,600

S = suppressed for reasons of confidentiality and/or data reliability

^aFor unemployed individuals, occupation is for their previous job.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

Appendix table 3-50.
Older S&E-degreed individuals working full time: 1999
(Percentages)

Age (years)	Highest degree		
	Bachelor's	Master's	Ph.D.
55	74.5	76.7	86.3
56	74.2	79.9	89.3
57	72.8	81.7	86.2
58	64.6	77.4	85.0
59	64.1	69.5	83.7
60	66.9	61.0	77.5
61	58.5	57.7	75.5
62	47.7	54.8	74.9
63	45.7	48.5	63.4
64	41.6	44.5	64.7
65	29.8	28.3	50.9
66	21.8	24.3	43.9
67	15.3	16.5	40.8
68	17.4	21.6	25.0
69	13.5	12.9	27.2
70	13.8	S	18.4

S = suppressed for reasons of confidentiality and/or data reliability

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

See figure 3-18 in volume 1.

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Appendix table 3-51.
Foreign-born U.S. residents with S&E highest degrees, by place of birth: 1999

Place of birth	Number
India	164,600
China	135,300
Germany	69,800
Philippines	67,000
United Kingdom	65,400
Taiwan	64,800
Canada	59,400
Korea	46,700
Vietnam	44,300
Iran	39,900
Former Soviet Union	38,000
Mexico	31,700
Japan	30,700
Other foreign-born	431,800

NOTE: Data do not include individuals with only foreign degrees who were not in U.S. in 1990.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

See figure 3-21 in Volume 1.

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Appendix table 3-52.

Number of foreign-born U.S. residents with S&E doctorates, by place of birth: 1999

Place of birth	Number
China	37,900
India	30,100
United Kingdom	13,100
Taiwan	10,900
Canada.....	8,400
Germany	7,200
Iran	4,800
Former Soviet Union	4,600
Korea.....	4,500
Philippines	3,400
Poland	3,200
Japan	2,800
Argentina	2,700
Other foreign-born	58,400

NOTE: Data do not include individuals with only foreign degrees who were not in U.S. in 1990.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Scientists and Engineers Statistical Data System (SESTAT), 1999.

See figure 3-21 in Volume 1.

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Appendix table 3-53.

Total science and engineering jobs: 2000 and projected 2010
 (Numbers in thousands of jobs)

Occupation	2000	2010	Change
Total, all occupations	145,571	167,754	22,183
All science & engineering	4,706	6,904	2,197
Scientists	3,241	5,301	2,059
Life scientists	184	218	33
Agriculture and food scientists	17	19	2
Biological scientists	73	88	15
Conservation scientists and foresters	29	31	2
Conservation scientists	16	18	1
Foresters	12	13	1
Medical scientists	37	47	10
All other biological and life scientists	28	33	5
Computer and mathematical occupations	2,408	4,308	1,900
Computer specialists	2,318	4,213	1,895
Computer scientists and systems analysts	459	729	269
Computer and information scientists, research	28	39	11
Computer systems analysts	431	689	258
Computer software engineers	697	1,361	664
Computer software engineers, applications	380	760	380
Computer software engineers, systems software ...	317	601	284
Computer support specialists	506	996	491
Database administrators	106	176	70
Network and computer systems administrators	229	416	187
Network systems and data communication analysts	119	211	92
All other computer scientists	203	325	122
Mathematical science occupations	89	95	5
Mathematical scientists and technicians	85	90	5
Actuaries	14	15	1
Mathematicians	4	4	—
Operations research analysis	47	51	4
Statisticians	19	20	—
Miscellaneous mathematical science occupations ..	5	5	—
Physical sciences	239	283	44
Astronomers and physicists	10	11	1
Atmospheric and space scientists	7	8	1
Chemists and materials scientists	92	110	18
Chemists	84	100	16
Materials scientists	8	9	2
Environmental scientists and geoscientists	97	118	21
Environmental scientists and specialists, including health	64	78	14
Geoscientists, except hydrologists and geographers	25	30	5
Hydrologists	8	10	2
All other physical scientists	33	36	3
Social scientists and related occupations	410	492	82
Economists	22	26	4
Market and survey researchers	113	142	30
Market research analysts	90	112	22
Survey researchers	23	30	8
Psychologists	182	214	33
Social scientists, other	15	17	3
Urban and regional planners	30	35	5
All other psychologists, social scientists, and related workers	49	58	8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 3-53.
Total science and engineering jobs: 2000 and projected 2010
 (Numbers in thousands of jobs)

Occupation	2000	2010	Change
Engineers	1,465	1,603	138
Aerospace engineers	50	57	7
Agricultural engineers	2	3	—
Biomedical engineers	7	9	2
Chemical engineers	33	34	1
Civil engineers	232	256	24
Computer hardware engineers	60	75	15
Electrical and electronics engineers	288	319	31
Electrical engineers	157	175	18
Electronics engineers, except computer	130	144	14
Environmental engineers	52	66	14
Industrial engineers, including health and safety	198	210	12
Health and safety engineers, except mining safety engineers and inspectors	44	49	5
Industrial engineers	154	161	7
Marine engineers and naval architects	5	5	—
Materials engineers	33	35	2
Mechanical engineers	221	251	29
Mining and geological engineers, including mining safety engineers	6	6	—
Nuclear engineers	14	14	—
Petroleum engineers	9	8	(1)
All other engineers	253	254	1

— = No change; () Decline

SOURCE: U.S. Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections, "National Industry-Occupation Employment Projections 2000-2010" (Washington, DC: 2001).

See text table 3-22 in Volume 1.

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Appendix table 4-1.
GDP and GDP implicit price deflators: 1953–2003

Year	Calendar year			Fiscal year		
	GDP (in billions)		GDP price deflator ^a	GDP (in billions)		GDP price deflator ^a
	Current dollars	Constant 1996 dollars		Current dollars	Constant 1996 dollars	
1953	379.9	1,973.9	19.25	373.4	1,941.8	19.23
1954	381.1	1,960.5	19.44	378.0	1,942.4	19.46
1955	415.2	2,099.5	19.78	395.2	2,014.3	19.62
1956	438.0	2,141.1	20.45	427.7	2,123.6	20.14
1957	461.5	2,183.9	21.13	450.7	2,157.5	20.89
1958	467.9	2,162.8	21.64	461.1	2,142.7	21.52
1959	507.4	2,319.0	21.88	492.1	2,250.1	21.87
1960	527.4	2,376.7	22.19	518.9	2,345.8	22.12
1961	545.7	2,432.0	22.44	531.8	2,370.9	22.43
1962	586.5	2,578.9	22.74	568.5	2,506.6	22.68
1963	618.7	2,690.4	23.00	599.7	2,609.7	22.98
1964	664.4	2,846.5	23.34	641.3	2,758.3	23.25
1965	720.1	3,028.5	23.78	687.9	2,907.4	23.66
1966	789.3	3,227.5	24.46	754.2	3,120.4	24.17
1967	834.1	3,308.3	25.21	813.5	3,261.8	24.94
1968	911.5	3,466.1	26.30	868.4	3,360.7	25.84
1969	985.3	3,571.4	27.59	949.2	3,514.3	27.01
1970	1,039.7	3,578.0	29.06	1,013.2	3,556.3	28.49
1971	1,128.6	3,697.7	30.52	1,081.4	3,614.3	29.92
1972	1,240.4	3,898.4	31.82	1,181.5	3,772.3	31.32
1973	1,385.5	4,123.4	33.60	1,308.1	3,999.1	32.71
1974	1,501.0	4,099.0	36.62	1,442.1	4,115.6	35.04
1975	1,635.2	4,084.4	40.03	1,559.8	4,033.6	38.67
1976	1,823.9	4,311.7	42.30	1,736.7	4,194.9	41.40
1977	2,031.4	4,511.8	45.02	1,971.3	4,428.9	44.51
1978	2,295.9	4,760.6	48.23	2,218.6	4,664.8	47.56
1979	2,566.4	4,912.1	52.25	2,503.8	4,869.3	51.42
1980	2,795.6	4,900.9	57.04	2,732.1	4,879.6	55.99
1981	3,131.3	5,021.0	62.37	3,061.6	4,984.7	61.42
1982	3,259.2	4,919.3	66.25	3,228.6	4,912.7	65.72
1983	3,534.9	5,132.3	68.88	3,440.5	5,014.6	68.61
1984	3,932.7	5,505.2	71.44	3,839.4	5,397.0	71.14
1985	4,213.0	5,717.1	73.69	4,136.6	5,628.8	73.49
1986	4,452.9	5,912.4	75.31	4,401.4	5,848.3	75.26
1987	4,742.5	6,113.3	77.58	4,647.0	6,009.3	77.33
1988	5,108.3	6,368.4	80.21	5,014.7	6,279.4	79.86
1989	5,489.1	6,591.8	83.27	5,405.5	6,518.1	82.93
1990	5,803.2	6,707.9	86.51	5,735.6	6,665.4	86.05
1991	5,986.2	6,676.4	89.66	5,930.4	6,633.6	89.40
1992	6,318.9	6,880.0	91.84	6,218.6	6,778.5	91.74
1993	6,642.3	7,062.6	94.05	6,558.4	6,982.2	93.93
1994	7,054.3	7,347.7	96.01	6,944.6	7,237.0	95.96
1995	7,400.5	7,543.8	98.10	7,324.0	7,470.4	98.04
1996	7,813.2	7,813.2	100.00	7,694.6	7,694.6	100.00
1997	8,318.4	8,159.5	101.95	8,185.2	8,028.6	101.95
1998	8,790.2	8,515.7	103.22	8,673.5	8,388.3	103.40
1999	9,299.2	8,875.8	104.77	9,130.4	8,708.1	104.85
2000	9,962.7	9,318.6	106.91	9,824.4	9,192.9	106.87
2001 ^b	10,421.0	9,542.2	109.16	10,315.6	9,441.1	109.11
2002 ^b	10,994.1	9,857.1	111.45	10,862.3	9,733.7	111.41
2003 ^b	11,587.8	10,172.6	113.79	11,448.9	10,045.2	113.75

GDP = gross domestic product

^a1996 = 100

^bProjected data.

SOURCES: Fiscal year (FY) GDP and deflators for 1953–2000 are from the Office of Management and Budget, FY 2002 Budget of the United States. Calendar year GDP and deflators for 1953–2000 are from the Bureau of Economic Analysis. All projected values were provided by the Office of Management and Budget, based on economic assumptions in the 2001 Bush Administration's report, *A Blueprint for New Beginnings: A Responsible Budget for America's Priorities*, Executive Office of the President, U.S. Government Printing Office, February 2001.

Appendix table 4-2.

Purchasing power parity and market exchange rates, by selected country: 1981–2000
 (Units of foreign currency per U.S. dollar)

Year	Purchasing power parity						Market exchange rate		
	Canada	France	Germany ^a	Italy	Japan	Russian Federation	United Kingdom	Germany ^a	
1981	1.27	5.70	2.41	891	241.5	—	0.53	2.26	221
1982	1.31	6.02	2.36	984	231.7	—	0.53	2.43	249
1983	1.31	6.32	2.33	1,084	225.6	—	0.54	2.55	238
1984	1.30	6.49	2.27	1,156	221.4	—	0.54	2.85	238
1985	1.28	6.64	2.23	1,217	218.4	—	0.55	2.94	239
1986	1.29	6.82	2.24	1,281	216.9	—	0.55	2.17	169
1987	1.31	6.80	2.20	1,316	210.2	—	0.56	1.80	145
1988	1.31	6.75	2.15	1,353	203.8	—	0.58	1.76	128
1989	1.32	6.69	2.11	1,378	199.2	—	0.59	1.88	138
1990	1.30	6.61	2.09	1,421	195.3	—	0.60	1.62	145
1991	1.29	6.51	2.09	1,463	193.1	1.1	0.64	1.66	135
1992	1.28	6.42	2.07	1,459	188.2	16.0	0.62	1.56	127
1993	1.26	6.57	2.10	1,534	184.3	152.6	0.64	1.65	111
1994	1.25	6.62	2.07	1,533	180.6	605.6	0.65	1.62	102
1995	1.18	6.46	2.02	1,550	169.9	1,593.6	0.65	1.43	94
1996	1.19	6.57	2.03	1,583	165.6	2,209.4	0.64	1.50	109
1997	1.19	6.72	2.01	1,644	165.1	2,502.9	0.65	1.73	121
1998	1.17	6.69	2.00	1,668	163.7	2,705.1	0.66	1.76	131
1999	1.17	6.61	2.00	1,668	159.9	—	0.67	—	—
2000	1.18	6.54	1.97	1,670	155.5	—	0.68	—	—

— = Data not used in this report

^aData for 1981–90 are for West Germany.

SOURCES: Organisation for Economic Co-operation and Development, Main Science and Technology Indicators database (Paris, November, 2000); Russian Centre for Science Research and Statistics; and International Monetary Fund, *International Financial Statistics Yearbook* (Washington, DC, 1999).

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Appendix table 4-3.

U.S. R&D expenditures, by performing sector and source of funds: 1953–2000
 (Millions of current dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry		Industry FFRDCs ^a		Universities & colleges					U&C FFRDCs		Other nonprofit institutions				Nonprofit FFRDCs ^a
	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1953	5,160	1,015	3,630	1,430	2,200	NA	273	149	40	21	37	27	131	112	58	26	28	NA
1954	5,621	963	4,070	1,750	2,320	NA	301	165	45	24	40	29	161	127	65	31	31	NA
1955	6,281	973	4,517	2,057	2,460	123	342	191	50	27	42	32	187	131	64	35	32	9
1956	8,500	1,130	6,272	2,995	3,277	333	391	221	57	32	46	36	217	146	71	37	38	11
1957	9,908	1,297	7,324	3,928	3,396	407	433	242	64	37	51	40	267	167	79	37	51	14
1958	10,915	1,507	8,066	4,436	3,630	323	491	280	72	39	56	45	316	195	95	38	62	18
1959	12,490	1,681	9,200	5,217	3,983	418	586	356	81	40	61	50	349	234	125	42	67	22
1960	13,711	1,801	10,032	5,604	4,428	477	705	453	90	40	67	55	385	264	148	48	68	48
1961	14,564	1,987	10,353	5,685	4,668	555	834	557	101	40	75	62	440	304	169	49	86	92
1962	15,636	2,188	11,037	6,008	5,029	426	993	687	112	41	84	70	500	363	200	54	109	130
1963	17,519	2,558	12,216	6,856	5,360	414	1,178	839	125	41	96	78	580	408	234	55	119	165
1964	19,103	2,965	13,049	7,257	5,792	463	1,375	995	138	41	114	88	629	417	250	55	112	205
1965	20,252	3,156	13,812	7,367	6,445	373	1,595	1,167	150	42	136	101	630	472	286	62	124	215
1966	22,072	3,308	15,193	7,977	7,216	355	1,818	1,335	160	45	165	114	652	537	329	70	138	210
1967	23,346	3,444	15,966	7,946	8,020	419	2,035	1,491	168	52	200	126	696	561	342	74	145	225
1968	24,666	3,497	17,014	8,145	8,869	415	2,187	1,586	185	58	221	139	722	596	364	81	151	235
1969	25,996	3,790	17,844	7,987	9,857	464	2,280	1,624	208	61	233	155	731	642	388	93	161	245
1970	26,271	4,154	17,594	7,306	10,288	473	2,418	1,686	237	66	259	171	727	677	410	95	172	230
1971	26,952	4,409	17,829	7,175	10,654	491	2,565	1,760	262	72	290	182	735	709	427	98	184	215
1972	28,740	4,676	19,004	7,469	11,535	548	2,757	1,890	282	79	312	195	785	771	472	101	198	200
1973	30,952	4,837	20,704	7,600	13,104	545	2,953	2,009	302	90	343	211	841	882	566	105	211	190
1974	33,359	5,132	22,239	7,572	14,667	648	3,216	2,160	320	104	393	239	926	988	639	114	235	210
1975	35,671	5,561	23,460	7,878	15,582	727	3,570	2,400	348	118	432	272	1,067	1,062	675	124	262	225
1976	39,435	5,890	26,107	8,671	17,436	890	3,899	2,619	369	131	480	300	1,266	1,139	711	135	292	245
1977	43,421	6,211	28,863	9,523	19,340	962	4,346	2,893	394	155	569	337	1,551	1,213	740	147	326	275
1978	48,774	6,962	32,222	10,107	22,115	1,082	4,996	3,329	443	182	679	364	1,826	1,353	830	160	363	333
1979	55,457	7,471	37,062	11,354	25,708	1,164	5,715	3,848	482	215	785	386	2,091	1,564	985	174	405	390
1980	63,273	7,831	43,228	12,752	30,476	1,277	6,455	4,335	519	264	920	419	2,366	1,641	1,000	189	452	475
1981	72,267	8,605	50,425	14,997	35,428	1,385	7,085	4,670	581	314	1,058	463	2,483	1,747	1,038	206	504	538
1982	80,848	9,501	57,166	17,061	40,105	1,484	7,603	4,879	621	363	1,207	534	2,608	1,961	1,175	224	561	525
1983	90,075	10,830	63,683	19,095	44,588	1,585	8,251	5,210	658	432	1,357	595	2,944	2,182	1,313	244	626	600
1984	102,344	11,916	73,061	21,657	51,404	1,739	9,154	5,748	721	518	1,514	654	3,337	2,513	1,550	265	698	625
1985	114,778	13,093	82,376	25,333	57,043	1,863	10,308	6,388	834	630	1,743	713	3,709	2,767	1,700	289	778	663
1986	120,337	13,504	85,932	26,000	59,932	1,891	11,540	7,028	969	745	2,019	780	4,051	2,882	1,700	314	867	538
1987	126,299	13,588	90,160	28,757	61,403	1,995	12,807	7,768	1,065	831	2,262	882	4,369	2,878	1,569	342	967	501
1988	133,930	14,342	94,893	28,221	66,672	2,122	14,220	8,592	1,165	933	2,527	1,003	4,631	3,213	1,762	372	1,078	510
1989	141,914	15,231	99,860	26,359	73,501	2,195	15,632	9,315	1,274	1,061	2,852	1,131	4,781	3,669	2,062	405	1,202	547

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-3.

U.S. R&D expenditures, by performing sector and source of funds: 1953–2000
 (Millions of current dollars)

Performing sector:	Total U.S.	Federal Gov't.		Industry		Industry FFRDCs ^a	Universities & colleges					U&C FFRDCs	Other nonprofit institutions				Nonprofit FFRDCs ^a	
	Total	Federal Gov't	Total	Federal Gov't	Industry ^b		Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't	Total	Federal Gov't	Industry	Non- profit	
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1990	152,051	15,671	107,404	25,802	81,602	2,323	16,936	9,936	1,399	1,166	3,187	1,249	4,955	4,126	2,346	440	1,340	636
1991	160,914	15,249	114,675	24,095	90,580	2,277	18,202	10,663	1,483	1,242	3,457	1,358	5,163	4,652	2,679	479	1,494	696
1992	165,358	15,853	116,757	22,369	94,388	2,353	19,384	11,524	1,525	1,320	3,568	1,448	5,271	4,993	2,806	521	1,666	748
1993	165,714	16,531	115,435	20,844	94,591	1,965	20,485	12,300	1,556	1,391	3,708	1,530	5,283	5,267	2,843	567	1,857	749
1994	169,214	16,355	117,392	20,261	97,131	2,202	21,591	12,985	1,621	1,455	3,936	1,594	5,317	5,599	2,911	617	2,071	758
1995	183,611	16,904	129,830	21,178	108,652	2,273	22,599	13,580	1,750	1,547	4,108	1,616	5,372	5,827	2,847	671	2,308	808
1996	197,330	16,585	142,371	21,356	121,015	2,297	23,686	14,067	1,858	1,667	4,430	1,665	5,410	6,209	2,906	730	2,574	772
1997	212,379	16,819	155,409	21,798	133,611	2,130	25,088	14,716	1,926	1,812	4,846	1,790	5,486	6,626	3,014	809	2,804	821
1998	226,872	17,362	167,102	22,086	145,016	2,078	26,664	15,589	1,987	1,971	5,183	1,934	5,589	7,234	3,281	880	3,073	843
1999	244,143	18,332	180,450	20,162	160,288	2,373	28,363	16,518	2,083	2,133	5,562	2,066	5,698	8,017	3,718	976	3,323	909
2000	264,622	19,143	197,280	19,635	177,645	2,575	30,154	17,475	2,197	2,310	5,969	2,203	5,801	8,750	4,079	1,085	3,586	918

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aExpenditures of industry FFRDCs for 1953–54 were not separated out from total Federal support to the industrial sector. Thus, the figure for Federal support to industry includes support to FFRDCs for those two years. The same is true for expenditures of nonprofit FFRDCs, which are included in Federal support for nonprofit institutions in 1953–54.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-4.

U.S. inflation-adjusted R&D expenditures, by performing sector and source of funds: 1953–2000

(Millions of constant 1996 dollars)

Performing sector:	Total U.S.	Federal Govt.	Industry		Industry FFRDCS ^a	Universities & colleges					U&C FFRDCS	Other nonprofit institutions				Nonprofit FFRDCS ^a		
	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1953	26,805	5,273	18,857	7,429	11,429	NA	1,416	774	205	106	190	140	681	579	299	135	145	NA
1954	28,912	4,951	20,936	9,002	11,934	NA	1,548	846	229	121	203	149	826	651	332	159	159	NA
1955	31,756	4,918	22,836	10,399	12,437	622	1,729	966	253	137	212	162	945	662	324	177	162	43
1956	41,565	5,528	30,670	14,645	16,024	1,628	1,912	1,081	276	154	225	176	1,061	711	345	181	186	54
1957	46,892	6,139	34,662	18,590	16,072	1,926	2,049	1,143	303	173	241	189	1,261	788	372	175	241	66
1958	50,439	6,962	37,274	20,499	16,774	1,493	2,269	1,294	333	180	256	206	1,458	901	439	176	287	83
1959	57,082	7,683	42,048	23,844	18,204	1,910	2,678	1,625	368	181	279	226	1,595	1,067	569	192	306	101
1960	61,790	8,115	45,210	25,255	19,955	2,150	3,175	2,039	406	180	302	248	1,735	1,190	667	216	306	216
1961	64,903	8,856	46,136	25,334	20,802	2,473	3,714	2,480	448	178	332	276	1,961	1,355	753	218	383	408
1962	68,761	9,620	48,536	26,420	22,115	1,873	4,365	3,019	493	178	369	306	2,199	1,596	880	237	479	572
1963	76,169	11,124	53,113	29,809	23,304	1,800	5,122	3,646	543	176	417	339	2,520	1,774	1,017	239	517	717
1964	81,846	12,705	55,908	31,093	24,816	1,984	5,889	4,263	589	174	486	377	2,695	1,787	1,071	236	480	878
1965	85,165	13,272	58,082	30,980	27,103	1,569	6,705	4,907	629	175	572	423	2,647	1,985	1,203	261	521	904
1966	90,236	13,523	62,114	32,612	29,501	1,451	7,433	5,458	654	184	673	464	2,664	2,193	1,343	286	564	859
1967	92,608	13,663	63,332	31,519	31,813	1,662	8,072	5,912	666	204	791	498	2,761	2,225	1,357	294	575	893
1968	93,788	13,297	64,692	30,970	33,722	1,578	8,316	6,030	702	219	838	527	2,745	2,266	1,384	308	574	894
1969	94,222	13,738	64,676	28,949	35,727	1,682	8,264	5,884	754	219	845	562	2,650	2,325	1,404	337	584	888
1970	90,404	14,294	60,544	25,141	35,403	1,628	8,319	5,800	816	225	890	588	2,500	2,328	1,409	327	592	791
1971	88,308	14,445	58,417	23,509	34,908	1,609	8,404	5,765	858	236	949	596	2,407	2,321	1,397	321	603	704
1972	90,321	14,694	59,723	23,473	36,251	1,722	8,664	5,940	886	248	979	611	2,467	2,421	1,482	317	622	629
1973	92,118	14,394	61,619	22,619	39,000	1,622	8,789	5,978	897	266	1,021	626	2,503	2,625	1,685	313	628	565
1974	91,095	14,015	60,729	20,677	40,052	1,770	8,781	5,898	874	284	1,072	653	2,529	2,698	1,744	312	642	573
1975	89,112	13,893	58,606	19,680	38,926	1,816	8,917	5,996	869	295	1,078	679	2,666	2,652	1,686	310	655	562
1976	93,227	13,925	61,719	20,499	41,220	2,104	9,216	6,191	872	310	1,135	708	2,992	2,692	1,681	320	691	579
1977	96,449	13,797	64,112	21,153	42,959	2,137	9,653	6,425	875	343	1,263	747	3,444	2,695	1,644	327	724	611
1978	101,127	14,435	66,809	20,956	45,853	2,243	10,358	6,901	919	376	1,408	754	3,786	2,806	1,721	332	754	689
1979	106,137	14,299	70,932	21,730	49,202	2,228	10,937	7,365	922	411	1,502	738	4,001	2,994	1,885	333	775	746
1980	110,927	13,728	75,785	22,356	53,429	2,239	11,317	7,599	909	462	1,612	735	4,148	2,877	1,753	332	792	833
1981	115,868	13,796	80,848	24,045	56,803	2,221	11,360	7,487	932	503	1,696	742	3,980	2,801	1,663	330	807	862
1982	122,034	14,342	86,288	25,752	60,536	2,240	11,475	7,364	937	548	1,821	805	3,937	2,960	1,774	339	848	792
1983	130,770	15,722	92,455	27,722	64,733	2,301	11,979	7,564	955	627	1,969	863	4,273	3,169	1,905	354	909	871
1984	143,259	16,679	102,269	30,315	71,954	2,434	12,813	8,045	1,009	724	2,119	915	4,670	3,518	2,170	372	977	875
1985	155,757	17,767	111,787	34,378	77,409	2,528	13,988	8,669	1,131	855	2,365	968	5,033	3,755	2,307	392	1,056	899
1986	159,789	17,932	114,104	34,524	79,580	2,511	15,323	9,331	1,287	989	2,680	1,036	5,378	3,826	2,257	417	1,152	714
1987	162,798	17,515	116,216	37,068	79,148	2,572	16,508	10,013	1,372	1,071	2,916	1,136	5,631	3,710	2,023	441	1,247	646
1988	166,974	17,881	118,306	35,184	83,122	2,646	17,728	10,712	1,452	1,163	3,150	1,250	5,773	4,005	2,197	464	1,344	635
1989	170,427	18,291	119,923	31,655	88,268	2,636	18,773	11,186	1,530	1,274	3,425	1,358	5,742	4,406	2,476	486	1,444	657

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 4-4.

U.S. inflation-adjusted R&D expenditures, by performing sector and source of funds: 1953–2000
 (Millions of constant 1996 dollars)

Performing sector:	Total U.S.	Federal Govt.		Industry		Industry FFRDCs ^a	Universities & colleges					U&C FFRDCs	Other nonprofit institutions				Nonprofit FFRDCs ^a	
	Total	Federal Gov't	Total	Federal Gov't	Industry ^b		Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1990	175,761	18,115	124,152	29,825	94,327	2,685	19,577	11,485	1,617	1,347	3,683	1,444	5,728	4,769	2,711	509	1,549	735
1991	179,471	17,008	127,900	26,874	101,026	2,540	20,301	11,893	1,653	1,385	3,856	1,515	5,758	5,189	2,988	534	1,666	776
1992	180,050	17,261	127,131	24,356	102,774	2,562	21,106	12,548	1,660	1,437	3,885	1,576	5,739	5,436	3,055	567	1,814	814
1993	176,198	17,576	122,738	22,163	100,575	2,089	21,780	13,078	1,654	1,479	3,942	1,627	5,617	5,601	3,023	603	1,975	796
1994	176,246	17,035	122,271	21,103	101,168	2,294	22,488	13,525	1,688	1,515	4,100	1,660	5,538	5,831	3,032	642	2,157	790
1995	187,167	17,231	132,345	21,588	110,756	2,317	23,036	13,843	1,783	1,576	4,187	1,647	5,476	5,940	2,902	684	2,353	823
1996	197,330	16,585	142,371	21,356	121,015	2,297	23,686	14,067	1,858	1,667	4,430	1,665	5,410	6,209	2,906	730	2,574	772
1997	208,316	16,497	152,436	21,381	131,055	2,089	24,608	14,434	1,889	1,777	4,753	1,755	5,381	6,500	2,956	793	2,750	805
1998	219,794	16,821	161,889	21,397	140,492	2,013	25,832	15,103	1,925	1,910	5,021	1,874	5,414	7,008	3,178	853	2,977	817
1999	233,027	17,497	172,235	19,244	152,990	2,265	27,072	15,766	1,988	2,036	5,309	1,972	5,438	7,652	3,549	931	3,172	868
2000	247,519	17,905	184,529	18,366	166,163	2,409	28,205	16,345	2,055	2,161	5,583	2,061	5,426	8,184	3,816	1,015	3,354	859

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aExpenditures of industry FFRDCs for 1953–54 were not separated out from total Federal support to the industrial sector. Thus, the figure for Federal support to industry includes support to FFRDCs for those two years. The same is true for expenditures of nonprofit FFRDCs, which are included in Federal support for nonprofit institutions in 1953–54.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-5.

U.S. R&D expenditures, by source of funds and performer: 1953–2000

(Millions of current dollars)

Funding sector:	Total U.S.	Federal Government							Industry				U&Cs	Nonprofit institutions				Non-Fed. Govt.
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1953	5,160	2,783	1,015	1,430	NA	149	131	58	NA	2,247	2,200	21	26	37	55	28	27	40
1954	5,621	3,102	963	1,750	NA	165	161	65	NA	2,375	2,320	24	31	40	60	31	29	45
1955	6,281	3,603	973	2,057	123	191	187	64	9	2,522	2,460	27	35	42	64	32	32	50
1956	8,500	4,978	1,130	2,995	333	221	217	71	11	3,346	3,277	32	37	46	74	38	36	57
1957	9,908	6,233	1,297	3,928	407	242	267	79	14	3,470	3,396	37	37	51	91	51	40	64
1958	10,915	6,974	1,507	4,436	323	280	316	95	18	3,707	3,630	39	38	56	107	62	45	72
1959	12,490	8,167	1,681	5,217	418	356	349	125	22	4,065	3,983	40	42	61	117	67	50	81
1960	13,711	8,915	1,801	5,604	477	453	385	148	48	4,516	4,428	40	48	67	123	68	55	90
1961	14,564	9,484	1,987	5,685	555	557	440	169	92	4,757	4,668	40	49	75	148	86	62	101
1962	15,636	10,138	2,188	6,008	426	687	500	200	130	5,124	5,029	41	54	84	179	109	70	112
1963	17,519	11,645	2,558	6,856	414	839	580	234	165	5,456	5,360	41	55	96	197	119	78	125
1964	19,103	12,764	2,965	7,257	463	995	629	250	205	5,888	5,792	41	55	114	200	112	88	138
1965	20,252	13,194	3,156	7,367	373	1,167	630	286	215	6,549	6,445	42	62	136	225	124	101	150
1966	22,072	14,165	3,308	7,977	355	1,335	652	329	210	7,331	7,216	45	70	165	252	138	114	160
1967	23,346	14,563	3,444	7,946	419	1,491	696	342	225	8,146	8,020	52	74	200	271	145	126	168
1968	24,666	14,964	3,497	8,145	415	1,586	722	364	235	9,008	8,869	58	81	221	290	151	139	185
1969	25,996	15,228	3,790	7,987	464	1,624	731	388	245	10,011	9,857	61	93	233	316	161	155	208
1970	26,271	14,984	4,154	7,306	473	1,686	727	410	230	10,449	10,288	66	95	259	343	172	171	237
1971	26,952	15,210	4,409	7,175	491	1,760	735	427	215	10,824	10,654	72	98	290	366	184	182	262
1972	28,740	16,039	4,676	7,469	548	1,890	785	472	200	11,715	11,535	79	101	312	393	198	195	282
1973	30,952	16,587	4,837	7,600	545	2,009	841	566	190	13,299	13,104	90	105	343	422	211	211	302
1974	33,359	17,287	5,132	7,572	648	2,160	926	639	210	14,885	14,667	104	114	393	474	235	239	320
1975	35,671	18,533	5,561	7,878	727	2,400	1,067	675	225	15,824	15,582	118	124	432	534	262	272	348
1976	39,435	20,292	5,890	8,671	890	2,619	1,266	711	245	17,702	17,436	131	135	480	592	292	300	369
1977	43,421	22,155	6,211	9,523	962	2,893	1,551	740	275	19,642	19,340	155	147	569	662	326	337	394
1978	48,774	24,468	6,962	10,107	1,082	3,329	1,826	830	333	22,457	22,115	182	160	679	727	363	364	443
1979	55,457	27,303	7,471	11,354	1,164	3,848	2,091	985	390	26,097	25,708	215	174	785	791	405	386	482
1980	63,273	30,035	7,831	12,752	1,277	4,335	2,366	1,000	475	30,929	30,476	264	189	920	871	452	419	519
1981	72,267	33,714	8,605	14,997	1,385	4,670	2,483	1,038	538	35,948	35,428	314	206	1,058	967	504	463	581
1982	80,848	37,233	9,501	17,061	1,484	4,879	2,608	1,175	525	40,692	40,105	363	224	1,207	1,095	561	534	621
1983	90,075	41,576	10,830	19,095	1,585	5,210	2,944	1,313	600	45,264	44,588	432	244	1,357	1,220	626	595	658
1984	102,344	46,571	11,916	21,657	1,739	5,748	3,337	1,550	625	52,187	51,404	518	265	1,514	1,351	698	654	721
1985	114,778	52,748	13,093	25,333	1,863	6,388	3,709	1,700	663	57,962	57,043	630	289	1,743	1,491	778	713	834
1986	120,337	54,711	13,504	26,000	1,891	7,028	4,051	1,700	538	60,991	59,932	745	314	2,019	1,647	867	780	969
1987	126,299	58,548	13,588	28,757	1,995	7,768	4,369	1,569	501	62,576	61,403	831	342	2,262	1,849	967	882	1,065
1988	133,930	60,180	14,342	28,221	2,122	8,592	4,631	1,762	510	67,977	66,672	933	372	2,527	2,081	1,078	1,003	1,165
1989	141,914	60,489	15,231	26,359	2,195	9,315	4,781	2,062	547	74,966	73,501	1,061	405	2,852	2,333	1,202	1,131	1,274

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-5.

U.S. R&D expenditures, by source of funds and performer: 1953–2000
 (Millions of current dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCS ^a	U&Cs	U&C FFRDCS ^c	Nonprofit	FFRDCS ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1990	152,051	61,669	15,671	25,802	2,323	9,936	4,955	2,346	636	83,208	81,602	1,166	440	3,187	2,589	1,340	1,249	1,399
1991	160,914	60,822	15,249	24,095	2,277	10,663	5,163	2,679	696	92,300	90,580	1,242	479	3,457	2,852	1,494	1,358	1,483
1992	165,358	60,923	15,853	22,369	2,353	11,524	5,271	2,806	748	96,229	94,388	1,320	521	3,568	3,113	1,666	1,448	1,525
1993	165,714	60,515	16,531	20,844	1,965	12,300	5,283	2,843	749	96,549	94,591	1,391	567	3,708	3,387	1,857	1,530	1,556
1994	169,214	60,790	16,355	20,261	2,202	12,985	5,317	2,911	758	99,203	97,131	1,455	617	3,936	3,664	2,071	1,594	1,621
1995	183,611	62,961	16,904	21,178	2,273	13,580	5,372	2,847	808	110,870	108,652	1,547	671	4,108	3,924	2,308	1,616	1,750
1996	197,330	63,392	16,585	21,356	2,297	14,067	5,410	2,906	772	123,412	121,015	1,667	730	4,430	4,238	2,574	1,665	1,858
1997	212,379	64,783	16,819	21,798	2,130	14,716	5,486	3,014	821	136,231	133,611	1,812	809	4,846	4,593	2,804	1,790	1,926
1998	226,872	66,827	17,362	22,086	2,078	15,589	5,589	3,281	843	147,867	145,016	1,971	880	5,183	5,007	3,073	1,934	1,987
1999	244,143	67,711	18,332	20,162	2,373	16,518	5,698	3,718	909	163,397	160,288	2,133	976	5,562	5,390	3,323	2,066	2,083
2000	264,622	69,627	19,143	19,635	2,575	17,475	5,801	4,079	918	181,040	177,645	2,310	1,085	5,969	5,789	3,586	2,203	2,197

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aExpenditures of industry FFRDCs for 1953–54 were not separated out from total Federal support to the industrial sector. Thus, the figure for Federal support to industry includes support to FFRDCs for those two years. The same is true for expenditures of nonprofit FFRDCs, which are included in Federal support for nonprofit institutions in 1953–54.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

^eBecause of limitations in the survey information, data on nonfederal government funding to other performers are not available, and are inconsequently included in other sectors's support for their own R&D performance. For example, nonfederal government support to nonprofits is included in nonprofits' support for their own R&D.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-6.

U.S. inflation-adjusted R&D expenditures, by source of funds and performer: 1953–2000

(Millions of constant 1996 dollars)

Funding sector:	Total U.S.	Federal Government							Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1953	26,805	14,455	5,273	7,429	NA	774	681	299	NA	11,670	11,429	106	135	190	286	145	140	205
1954	28,912	15,957	4,951	9,002	NA	846	826	332	NA	12,215	11,934	121	159	203	309	159	149	229
1955	31,756	18,217	4,918	10,399	622	966	945	324	43	12,750	12,437	137	177	212	324	162	162	253
1956	41,565	24,342	5,528	14,645	1,628	1,081	1,061	345	54	16,359	16,024	154	181	225	362	186	176	276
1957	46,892	29,497	6,139	18,590	1,926	1,143	1,261	372	66	16,420	16,072	173	175	241	431	241	189	303
1958	50,439	32,228	6,962	20,499	1,493	1,294	1,458	439	83	17,130	16,774	180	176	256	492	287	206	333
1959	57,082	37,327	7,683	23,844	1,910	1,625	1,595	569	101	18,576	18,204	181	192	279	532	306	226	368
1960	61,790	40,176	8,115	25,255	2,150	2,039	1,735	667	216	20,352	19,955	180	216	302	554	306	248	406
1961	64,903	42,265	8,856	25,334	2,473	2,480	1,961	753	408	21,199	20,802	178	218	332	660	383	276	448
1962	68,761	44,583	9,620	26,420	1,873	3,019	2,199	880	572	22,531	22,115	178	237	369	785	479	306	493
1963	76,169	50,632	11,124	29,809	1,800	3,646	2,520	1,017	717	23,720	23,304	176	239	417	857	517	339	543
1964	81,846	54,688	12,705	31,093	1,984	4,263	2,695	1,071	878	25,225	24,816	174	236	486	857	480	377	589
1965	85,165	55,482	13,272	30,980	1,569	4,907	2,647	1,203	904	27,538	27,103	175	261	572	944	521	423	629
1966	90,236	57,910	13,523	32,612	1,451	5,458	2,664	1,343	859	29,971	29,501	184	286	673	1,028	564	464	654
1967	92,608	57,766	13,663	31,519	1,662	5,912	2,761	1,357	893	32,311	31,813	204	294	791	1,073	575	498	666
1968	93,788	56,898	13,297	30,970	1,578	6,030	2,745	1,384	894	34,249	33,722	219	308	838	1,101	574	527	702
1969	94,222	55,195	13,738	28,949	1,682	5,884	2,650	1,404	888	36,283	35,727	219	337	845	1,145	584	562	754
1970	90,404	51,563	14,294	25,141	1,628	5,800	2,500	1,409	791	35,955	35,403	225	327	890	1,180	592	588	816
1971	88,308	49,837	14,445	23,509	1,609	5,765	2,407	1,397	704	35,465	34,908	236	321	949	1,199	603	596	858
1972	90,321	50,406	14,694	23,473	1,722	5,940	2,467	1,482	629	36,816	36,251	248	317	979	1,234	622	611	886
1973	92,118	49,366	14,394	22,619	1,622	5,978	2,503	1,685	565	39,579	39,000	266	313	1,021	1,254	628	626	897
1974	91,095	47,206	14,015	20,677	1,770	5,898	2,529	1,744	573	40,648	40,052	284	312	1,072	1,295	642	653	874
1975	89,112	46,299	13,893	19,680	1,816	5,996	2,666	1,686	562	39,531	38,926	295	310	1,078	1,335	655	679	869
1976	93,227	47,971	13,925	20,499	2,104	6,191	2,992	1,681	579	41,849	41,220	310	320	1,135	1,399	691	708	872
1977	96,449	49,211	13,797	21,153	2,137	6,425	3,444	1,644	611	43,629	42,959	343	327	1,263	1,472	724	747	875
1978	101,127	50,732	14,435	20,956	2,243	6,901	3,786	1,721	689	46,561	45,853	376	332	1,408	1,507	754	754	919
1979	106,137	52,254	14,299	21,730	2,228	7,365	4,001	1,885	746	49,946	49,202	411	333	1,502	1,513	775	738	922
1980	110,927	52,656	13,728	22,356	2,239	7,599	4,148	1,753	833	54,223	53,429	462	332	1,612	1,527	792	735	909
1981	115,868	54,054	13,796	24,045	2,221	7,487	3,980	1,663	862	57,637	56,803	503	330	1,696	1,550	807	742	932
1982	122,034	56,200	14,342	25,752	2,240	7,364	3,937	1,774	792	61,422	60,536	548	339	1,821	1,653	848	805	937
1983	130,770	60,359	15,722	27,722	2,301	7,564	4,273	1,905	871	65,714	64,733	627	354	1,969	1,772	909	863	955
1984	143,259	65,188	16,679	30,315	2,434	8,045	4,670	2,170	875	73,050	71,954	724	372	2,119	1,892	977	915	1,009
1985	155,757	71,581	17,767	34,378	2,528	8,669	5,033	2,307	899	78,656	77,409	855	392	2,365	2,023	1,056	968	1,131
1986	159,789	72,648	17,932	34,524	2,511	9,331	5,378	2,257	714	80,987	79,580	989	417	2,680	2,188	1,152	1,036	1,287
1987	162,798	75,468	17,515	37,068	2,572	10,013	5,631	2,023	646	80,660	79,148	1,071	441	2,916	2,383	1,247	1,136	1,372
1988	166,974	75,028	17,881	35,184	2,646	10,712	5,773	2,197	635	84,749	83,122	1,163	464	3,150	2,595	1,344	1,250	1,452
1989	170,427	72,642	18,291	31,655	2,636	11,186	5,742	2,476	657	90,028	88,268	1,274	486	3,425	2,802	1,444	1,358	1,530

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-6.

U.S. inflation-adjusted R&D expenditures, by source of funds and performer: 1953–2000
 (Millions of constant 1996 dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCS ^a	U&Cs	FFRDCS ^c	Nonprofit	FFRDCS ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1990	175,761	71,285	18,115	29,825	2,685	11,485	5,728	2,711	735	96,183	94,327	1,347	509	3,683	2,993	1,549	1,444	1,617
1991	179,471	67,836	17,008	26,874	2,540	11,893	5,758	2,988	776	102,945	101,026	1,385	534	3,856	3,181	1,666	1,515	1,653
1992	180,050	66,336	17,261	24,356	2,562	12,548	5,739	3,055	814	104,779	102,774	1,437	567	3,885	3,390	1,814	1,576	1,660
1993	176,198	64,343	17,576	22,163	2,089	13,078	5,617	3,023	796	102,657	100,575	1,479	603	3,942	3,601	1,975	1,627	1,654
1994	176,246	63,316	17,035	21,103	2,294	13,525	5,538	3,032	790	103,326	101,168	1,515	642	4,100	3,816	2,157	1,660	1,688
1995	187,167	64,180	17,231	21,588	2,317	13,843	5,476	2,902	823	113,017	110,756	1,576	684	4,187	4,000	2,353	1,647	1,783
1996	197,330	63,392	16,585	21,356	2,297	14,067	5,410	2,906	772	123,412	121,015	1,667	730	4,430	4,238	2,574	1,665	1,858
1997	208,316	63,544	16,497	21,381	2,089	14,434	5,381	2,956	805	133,626	131,055	1,777	793	4,753	4,505	2,750	1,755	1,889
1998	219,794	64,743	16,821	21,397	2,013	15,103	5,414	3,178	817	143,254	140,492	1,910	853	5,021	4,851	2,977	1,874	1,925
1999	233,027	64,628	17,497	19,244	2,265	15,766	5,438	3,549	868	155,958	152,990	2,036	931	5,309	5,144	3,172	1,972	1,988
2000	247,519	65,127	17,905	18,366	2,409	16,345	5,426	3,816	859	169,339	166,163	2,161	1,015	5,583	5,415	3,354	2,061	2,055

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aExpenditures of industry FFRDCs for 1953–54 were not separated out from total Federal support to the industrial sector. Thus, the figure for Federal support to industry includes support to FFRDCs for those two years. The same is true for expenditures of nonprofit FFRDCs, which are included in Federal support for nonprofit institutions in 1953–54.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

^eBecause of limitations in the survey information, data on nonfederal government funding to other performers are not available, and are consequently included in other sectors's support for their own R&D performance. For example, nonfederal government support to nonprofits is included in nonprofits' support for their own R&D.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-7.

U.S. basic research expenditures, by performing sector and source of funds: 1953–2000

(Millions of current dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry			Industry FFRDCs ^a	Universities & colleges					U&C FFRDCs	Other nonprofit institutions				Nonprofit FFRDCs ^a	
	Total	Federal Gov't	Total	Federal Gov't	Industry ^b		Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't	Total	Federal Gov't	Industry	Non- profit	
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1953	460	102	151	19	132	NA	123	82	7	13	6	16	36	48	27	9	12	NA
1954	509	96	166	23	143	NA	148	97	10	15	8	18	44	55	31	11	13	NA
1955	579	98	189	27	162	NA	180	117	14	17	12	21	50	63	36	13	14	NA
1956	718	114	253	37	216	NA	220	143	19	20	15	24	58	74	42	15	17	NA
1957	814	124	271	41	230	NA	261	167	25	23	20	27	72	87	49	15	23	NA
1958	944	149	295	43	252	NA	312	202	31	24	24	31	85	103	59	16	28	NA
1959	1,087	165	320	72	248	NA	388	263	38	24	28	36	95	120	72	18	30	NA
1960	1,286	184	376	79	297	NA	485	341	45	25	33	41	106	136	85	21	30	NA
1961	1,512	230	395	81	314	NA	598	432	54	25	40	48	126	164	105	22	37	NA
1962	1,824	252	488	143	345	NA	737	546	64	25	48	55	148	200	130	24	46	NA
1963	2,115	285	522	147	375	NA	909	689	75	25	58	63	175	225	150	25	50	NA
1964	2,396	339	507	123	384	42	1,071	824	84	25	70	68	200	238	166	25	47	NA
1965	2,664	375	563	157	406	29	1,221	944	94	27	86	70	218	260	179	29	52	NA
1966	2,930	410	593	142	451	31	1,380	1,066	104	29	106	75	239	278	188	32	58	NA
1967	3,168	434	595	168	427	34	1,554	1,188	114	34	136	83	263	289	194	34	61	NA
1968	3,376	482	607	145	462	35	1,681	1,265	131	38	156	91	276	296	196	37	63	NA
1969	3,491	545	581	123	458	37	1,754	1,288	153	40	171	103	272	302	192	43	67	NA
1970	3,594	562	566	122	444	36	1,855	1,323	179	43	196	115	265	311	195	44	72	NA
1971	3,720	581	557	101	456	33	1,968	1,385	194	50	214	127	252	329	207	45	77	NA
1972	3,850	603	554	91	463	39	2,038	1,437	195	55	216	134	270	347	216	47	84	NA
1973	4,099	652	595	96	499	36	2,103	1,489	196	59	223	137	343	371	232	49	90	NA
1974	4,511	715	650	114	536	49	2,282	1,609	204	66	250	153	415	401	245	54	102	NA
1975	4,875	760	677	104	573	53	2,480	1,768	212	72	264	164	476	430	255	59	116	NA
1976	5,373	850	750	116	634	69	2,675	1,924	218	75	283	175	556	474	278	65	131	NA
1977	6,075	943	836	135	701	75	2,967	2,114	232	89	334	198	734	521	301	72	148	NA
1978	6,998	1,044	941	156	785	94	3,376	2,399	260	107	398	213	945	598	351	79	168	NA
1979	7,864	1,112	1,054	161	893	104	3,828	2,719	286	128	466	229	1,077	689	413	87	190	NA
1980	8,825	1,212	1,205	170	1,035	120	4,315	3,061	307	156	544	248	1,201	771	461	95	215	NA
1981	9,844	1,343	1,477	164	1,313	137	4,737	3,331	338	183	615	269	1,299	853	505	105	243	NA
1982	10,863	1,522	1,776	253	1,523	128	5,091	3,475	368	215	716	317	1,406	941	551	115	275	NA
1983	12,110	1,733	2,106	346	1,760	117	5,518	3,689	396	260	816	358	1,587	1,050	613	127	311	NA
1984	13,503	1,877	2,472	340	2,132	136	6,145	4,087	436	313	915	395	1,728	1,147	656	139	351	NA
1985	14,885	1,947	2,731	358	2,373	131	7,025	4,606	515	389	1,076	440	1,821	1,231	681	153	397	NA
1986	17,287	2,026	3,930	434	3,496	117	7,943	5,122	606	466	1,262	488	1,955	1,317	700	168	449	NA
1987	18,551	2,047	4,181	598	3,583	142	8,644	5,527	659	514	1,399	545	2,139	1,399	707	185	507	NA
1988	19,813	2,116	4,163	656	3,507	337	9,343	5,937	705	565	1,529	607	2,299	1,531	756	203	573	24
1989	21,908	2,309	4,818	986	3,832	398	10,218	6,422	766	637	1,714	680	2,390	1,730	860	223	647	46

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-7.

U.S. basic research expenditures, by performing sector and source of funds: 1953–2000

(Millions of current dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry			Industry FFRDCS ^a						U&C FFRDCS				Other nonprofit institutions				Nonprofit FFRDCS ^a
	Total U.S.	Federal Gov't.	Total	Federal Gov't.	Industry ^b	Federal Gov't.	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non-profit	Federal Gov't	Nonprofit FFRDCS ^a	
Calendar year^d																				
1990	23,069	2,319	4,629	869	3,760	499	11,125	6,888	847	705	1,929	756	2,512	1,922	947	245	730	65		
1991	27,201	2,378	7,376	1,251	6,125	461	12,061	7,423	912	764	2,127	836	2,719	2,129	1,036	269	825	77		
1992	27,628	2,419	6,528	712	5,816	474	12,910	8,058	941	814	2,202	893	2,891	2,340	1,114	295	931	67		
1993	28,754	2,621	6,427	466	5,961	492	13,642	8,636	952	851	2,268	936	2,968	2,532	1,157	324	1,051	72		
1994	29,578	2,547	6,514	436	6,078	503	14,392	9,134	990	889	2,405	974	2,870	2,678	1,137	356	1,186	75		
1995	29,560	2,689	5,569	190	5,379	530	15,137	9,628	1,069	945	2,509	987	2,661	2,899	1,170	390	1,338	75		
1996	32,812	2,680	7,498	650	6,848	708	16,029	10,085	1,148	1,030	2,738	1,028	2,632	3,187	1,248	428	1,510	79		
1997	36,270	2,746	9,795	1,029	8,766	625	17,015	10,608	1,190	1,119	2,993	1,105	2,660	3,322	1,317	449	1,557	108		
1998	41,294	3,003	13,027	1,326	11,701	568	18,143	11,358	1,217	1,208	3,175	1,185	2,685	3,656	1,461	489	1,706	213		
1999	44,625	3,312	14,024	1,211	12,813	649	19,439	12,154	1,281	1,312	3,421	1,271	2,759	4,092	1,705	542	1,845	351		
2000	47,903	3,525	15,378	1,179	14,199	704	20,656	12,857	1,351	1,421	3,672	1,355	2,809	4,492	1,898	602	1,991	339		

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, basic research of industry FFRDCs were not separated out from total federal support to the industrial sector for basic research. Thus, the figure for federal support to industry for basic research includes support for basic research at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-8.

U.S. inflation-adjusted basic research expenditures, by performing sector and source of funds: 1953–2000

(Millions of constant 1996 dollars)

Performing sector:	Total U.S.	Federal Gov't.		Industry		Industry FFRDCs ^a	Universities & colleges					U&C FFRDCs	Other nonprofit institutions				Nonprofit FFRDCs ^a Federal Gov't	
	Total	Federal Gov't	Total	Federal Gov't	Industry ^b		Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't	Total	Federal Gov't	Industry	Non- profit	
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1953	2,387	527	784	99	686	NA	639	423	34	68	31	83	187	249	140	47	62	NA
1954	2,616	494	854	118	736	NA	759	496	49	77	43	93	226	283	159	57	67	NA
1955	2,927	493	956	137	819	NA	907	589	70	86	59	104	253	319	182	66	71	NA
1956	3,511	555	1,237	181	1,056	NA	1,076	697	93	95	76	115	284	359	203	73	83	NA
1957	3,850	587	1,283	194	1,088	NA	1,233	788	117	106	93	128	338	409	230	71	109	NA
1958	4,360	689	1,363	199	1,165	NA	1,442	933	144	111	111	143	393	474	270	74	129	NA
1959	4,968	752	1,463	329	1,133	NA	1,773	1,200	172	110	130	162	432	548	329	82	137	NA
1960	5,795	827	1,694	356	1,338	NA	2,183	1,534	203	110	151	185	478	613	383	95	135	NA
1961	6,736	1,023	1,760	361	1,399	NA	2,663	1,923	239	111	177	212	559	731	468	98	165	NA
1962	8,021	1,108	2,146	629	1,517	NA	3,239	2,399	280	110	210	240	649	880	572	106	202	NA
1963	9,196	1,237	2,270	639	1,630	NA	3,950	2,996	326	107	250	272	761	978	652	109	217	NA
1964	10,266	1,452	2,172	527	1,645	180	4,587	3,528	361	107	298	291	855	1,020	711	107	201	NA
1965	11,203	1,575	2,368	660	1,707	122	5,132	3,968	397	111	362	294	915	1,091	751	122	219	NA
1966	11,979	1,676	2,424	581	1,844	127	5,642	4,358	423	119	435	307	975	1,135	767	131	237	NA
1967	12,564	1,720	2,360	666	1,694	135	6,162	4,710	452	133	538	329	1,043	1,144	768	135	242	NA
1968	12,837	1,833	2,308	551	1,757	133	6,390	4,810	497	143	594	346	1,048	1,125	745	141	240	NA
1969	12,652	1,976	2,106	446	1,660	134	6,356	4,667	554	143	620	372	986	1,095	696	156	243	NA
1970	12,367	1,934	1,948	420	1,528	124	6,383	4,551	617	148	673	394	910	1,068	669	151	248	NA
1971	12,189	1,904	1,825	331	1,494	108	6,448	4,536	635	162	701	414	826	1,078	678	147	252	NA
1972	12,099	1,894	1,741	286	1,455	123	6,403	4,516	614	173	679	421	849	1,091	679	148	264	NA
1973	12,201	1,940	1,771	286	1,485	107	6,259	4,430	584	174	664	406	1,021	1,103	689	146	268	NA
1974	12,317	1,952	1,775	311	1,464	134	6,230	4,394	557	180	683	416	1,132	1,095	669	147	278	NA
1975	12,177	1,898	1,691	260	1,431	132	6,194	4,417	531	179	658	410	1,188	1,074	637	148	289	NA
1976	12,702	2,010	1,773	274	1,499	163	6,323	4,548	515	177	670	413	1,314	1,120	656	154	309	NA
1977	13,494	2,094	1,857	300	1,557	167	6,589	4,696	515	198	742	439	1,629	1,158	669	159	329	NA
1978	14,509	2,165	1,951	323	1,628	195	7,000	4,974	539	221	826	441	1,958	1,239	728	164	348	NA
1979	15,051	2,129	2,017	308	1,709	199	7,325	5,204	547	244	892	438	2,061	1,319	789	166	363	NA
1980	15,471	2,125	2,113	298	1,815	210	7,565	5,366	538	273	954	435	2,106	1,352	809	167	376	NA
1981	15,784	2,153	2,368	263	2,105	220	7,594	5,341	542	293	987	432	2,082	1,367	810	168	389	NA
1982	16,397	2,297	2,681	382	2,299	193	7,685	5,245	556	325	1,081	478	2,122	1,421	832	174	415	NA
1983	17,582	2,515	3,057	502	2,555	170	8,011	5,355	575	377	1,185	519	2,304	1,524	889	184	451	NA
1984	18,901	2,627	3,460	476	2,984	190	8,601	5,720	610	438	1,281	553	2,418	1,605	919	195	492	NA
1985	20,200	2,643	3,706	486	3,220	178	9,533	6,250	698	528	1,460	597	2,470	1,671	924	207	539	NA
1986	22,954	2,690	5,218	576	4,642	155	10,547	6,801	804	619	1,676	648	2,595	1,748	929	223	596	NA
1987	23,912	2,639	5,389	771	4,618	183	11,141	7,124	849	663	1,804	703	2,757	1,803	912	238	653	NA
1988	24,701	2,638	5,190	818	4,372	420	11,648	7,401	879	704	1,907	757	2,866	1,909	943	253	714	30
1989	26,310	2,773	5,786	1,184	4,602	478	12,270	7,712	919	765	2,058	816	2,870	2,077	1,033	267	777	56

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-8.

U.S. inflation-adjusted basic research expenditures, by performing sector and source of funds: 1953–2000
 (Millions of constant 1996 dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry		Industry FFRDCs ^a		Universities & colleges				U&C FFRDCs		Other nonprofit institutions				Nonprofit FFRDCs ^a	
	Total	Federal Gov't.	Total	Federal Gov't.	Industry ^b	Federal Gov't.	Total	Federal Gov't.	Non-Federal Gov't.	Industry	U&Cs	Nonprofit	Federal Gov't. ^c	Total	Federal Gov't.	Industry	Non- profit	Federal Gov't.
Calendar year^d																		
1990	26,667	2,680	5,351	1,005	4,346	577	12,859	7,962	979	815	2,230	874	2,903	2,222	1,095	283	844	75
1991	30,338	2,652	8,227	1,395	6,831	514	13,452	8,278	1,017	852	2,372	932	3,033	2,375	1,155	300	920	86
1992	30,082	2,634	7,108	775	6,333	516	14,057	8,774	1,025	887	2,398	973	3,147	2,548	1,213	321	1,014	73
1993	30,573	2,787	6,834	495	6,338	523	14,505	9,182	1,012	905	2,411	995	3,156	2,692	1,230	344	1,117	77
1994	30,807	2,653	6,785	454	6,331	524	14,990	9,514	1,032	926	2,505	1,014	2,989	2,790	1,184	370	1,235	78
1995	30,132	2,741	5,677	194	5,483	540	15,430	9,814	1,089	963	2,557	1,006	2,713	2,955	1,193	398	1,364	77
1996	32,812	2,680	7,498	650	6,848	708	16,029	10,085	1,148	1,030	2,738	1,028	2,632	3,187	1,248	428	1,510	79
1997	35,576	2,693	9,608	1,009	8,598	613	16,689	10,405	1,167	1,097	2,936	1,084	2,609	3,259	1,291	440	1,527	106
1998	40,006	2,909	12,621	1,285	11,336	550	17,577	11,004	1,179	1,170	3,076	1,148	2,601	3,542	1,415	473	1,653	206
1999	42,593	3,161	13,385	1,155	12,230	619	18,554	11,601	1,223	1,252	3,265	1,213	2,633	3,906	1,628	517	1,761	335
2000	44,807	3,297	14,384	1,103	13,281	658	19,321	12,026	1,264	1,329	3,435	1,268	2,628	4,202	1,776	564	1,862	317

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, basic research of industry FFRDCs were not separated out from total federal support to the industrial sector for basic research. Thus, the figure for federal support to industry for basic research includes support for basic research at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-9.

U.S. basic research expenditures, by source of funds and performer: 1953–2000
 (Millions of current dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1953	460	265	102	19	NA	82	36	27	NA	154	132	13	9	6	28	12	16	7
1954	509	291	96	23	NA	97	44	31	NA	169	143	15	11	8	31	13	18	10
1955	579	327	98	27	NA	117	50	36	NA	192	162	17	13	12	35	14	21	14
1956	718	393	114	37	NA	143	58	42	NA	251	216	20	15	15	41	17	24	19
1957	814	452	124	41	NA	167	72	49	NA	268	230	23	15	20	50	23	27	25
1958	944	538	149	43	NA	202	85	59	NA	292	252	24	16	24	59	28	31	31
1959	1,087	666	165	72	NA	263	95	72	NA	290	248	24	18	28	66	30	36	38
1960	1,286	794	184	79	NA	341	106	85	NA	343	297	25	21	33	71	30	41	45
1961	1,512	973	230	81	NA	432	126	105	NA	361	314	25	22	40	85	37	48	54
1962	1,824	1,218	252	143	NA	546	148	130	NA	394	345	25	24	48	101	46	55	64
1963	2,115	1,446	285	147	NA	689	175	150	NA	425	375	25	25	58	113	50	63	75
1964	2,396	1,693	339	123	42	824	200	166	NA	434	384	25	25	70	115	47	68	84
1965	2,664	1,900	375	157	29	944	218	179	NA	462	406	27	29	86	122	52	70	94
1966	2,930	2,075	410	142	31	1,066	239	188	NA	512	451	29	32	106	133	58	75	104
1967	3,168	2,280	434	168	34	1,188	263	194	NA	495	427	34	34	136	144	61	83	114
1968	3,376	2,399	482	145	35	1,265	276	196	NA	537	462	38	37	156	154	63	91	131
1969	3,491	2,457	545	123	37	1,288	272	192	NA	541	458	40	43	171	170	67	103	153
1970	3,594	2,501	562	122	36	1,323	265	195	NA	531	444	43	44	196	187	72	115	179
1971	3,720	2,559	581	101	33	1,385	252	207	NA	551	456	50	45	214	204	77	127	194
1972	3,850	2,656	603	91	39	1,437	270	216	NA	565	463	55	47	216	218	84	134	195
1973	4,099	2,847	652	96	36	1,489	343	232	NA	607	499	59	49	223	227	90	137	196
1974	4,511	3,146	715	114	49	1,609	415	245	NA	656	536	66	54	250	254	102	153	204
1975	4,875	3,415	760	104	53	1,768	476	255	NA	704	573	72	59	264	280	116	164	212
1976	5,373	3,793	850	116	69	1,924	556	278	NA	774	634	75	65	283	305	131	175	218
1977	6,075	4,302	943	135	75	2,114	734	301	NA	862	701	89	72	334	346	148	198	232
1978	6,998	4,989	1,044	156	94	2,399	945	351	NA	970	785	107	79	398	380	168	213	260
1979	7,864	5,586	1,112	161	104	2,719	1,077	413	NA	1,107	893	128	87	466	419	190	229	286
1980	8,825	6,225	1,212	170	120	3,061	1,201	461	NA	1,286	1,035	156	95	544	463	215	248	307
1981	9,844	6,778	1,343	164	137	3,331	1,299	505	NA	1,600	1,313	183	105	615	512	243	269	338
1982	10,863	7,334	1,522	253	128	3,475	1,406	551	NA	1,854	1,523	215	115	716	591	275	317	368
1983	12,110	8,084	1,733	346	117	3,689	1,587	613	NA	2,146	1,760	260	127	816	668	311	358	396
1984	13,503	8,823	1,877	340	136	4,087	1,728	656	NA	2,584	2,132	313	139	915	746	351	395	436
1985	14,885	9,544	1,947	358	131	4,606	1,821	681	NA	2,915	2,373	389	153	1,076	837	397	440	515
1986	17,287	10,353	2,026	434	117	5,122	1,955	700	NA	4,130	3,496	466	168	1,262	936	449	488	606
1987	18,551	11,160	2,047	598	142	5,527	2,139	707	NA	4,282	3,583	514	185	1,399	1,052	507	545	659
1988	19,813	12,124	2,116	656	337	5,937	2,299	756	24	4,274	3,507	565	203	1,529	1,180	573	607	705
1989	21,908	13,411	2,309	986	398	6,422	2,390	860	46	4,692	3,832	637	223	1,714	1,326	647	680	766

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-9.

U.S. basic research expenditures, by source of funds and performer: 1953–2000
 (Millions of current dollars)

Funding sector:	Total U.S.	Federal Government							Industry				U&Cs	Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1990	23,069	14,097	2,319	869	499	6,888	2,512	947	65	4,710	3,760	705	245	1,929	1,486	730	756	847
1991	27,201	15,345	2,378	1,251	461	7,423	2,719	1,036	77	7,157	6,125	764	269	2,127	1,660	825	836	912
1992	27,628	15,734	2,419	712	474	8,058	2,891	1,114	67	6,925	5,816	814	295	2,202	1,824	931	893	941
1993	28,754	16,412	2,621	466	492	8,636	2,968	1,157	72	7,136	5,961	851	324	2,268	1,987	1,051	936	952
1994	29,578	16,701	2,547	436	503	9,134	2,870	1,137	75	7,322	6,078	889	356	2,405	2,160	1,186	974	990
1995	29,560	16,944	2,689	190	530	9,628	2,661	1,170	75	6,714	5,379	945	390	2,509	2,325	1,338	987	1,069
1996	32,812	18,082	2,680	650	708	10,085	2,632	1,248	79	8,306	6,848	1,030	428	2,738	2,538	1,510	1,028	1,148
1997	36,270	19,092	2,746	1,029	625	10,608	2,660	1,317	108	10,334	8,766	1,119	449	2,993	2,662	1,557	1,105	1,190
1998	41,294	20,613	3,003	1,326	568	11,358	2,685	1,461	213	13,397	11,701	1,208	489	3,175	2,891	1,706	1,185	1,217
1999	44,625	22,140	3,312	1,211	649	12,154	2,759	1,705	351	14,667	12,813	1,312	542	3,421	3,116	1,845	1,271	1,281
2000	47,903	23,310	3,525	1,179	704	12,857	2,809	1,898	339	16,223	14,199	1,421	602	3,672	3,346	1,991	1,355	1,351

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, basic research of industry FFRDCs were not separated out from total Federal support to the industrial sector for basic research. Thus, the figure for Federal support to industry for basic research includes support for basic research at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

^eBecause of limitations in the survey information, data on nonfederal government funding to other performers are not available, and are inconsequently included in other sectors's support for their own R&D performance. For example, nonfederal government support to nonprofits is included in nonprofits' support for their own R&D.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-10.

U.S. inflation-adjusted basic research expenditures, by source of funds and performer: 1953–2000

(Millions of constant 1996 dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	U&C FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1953	2,387	1,377	527	99	NA	423	187	140	NA	800	686	68	47	31	145	62	83	34
1954	2,616	1,494	494	118	NA	496	226	159	NA	869	736	77	57	43	159	67	93	49
1955	2,927	1,653	493	137	NA	589	253	182	NA	971	819	86	66	59	174	71	104	70
1956	3,511	1,919	555	181	NA	697	284	203	NA	1,225	1,056	95	73	76	198	83	115	93
1957	3,850	2,137	587	194	NA	788	338	230	NA	1,266	1,088	106	71	93	237	109	128	117
1958	4,360	2,484	689	199	NA	933	393	270	NA	1,349	1,165	111	74	111	273	129	143	144
1959	4,968	3,042	752	329	NA	1,200	432	329	NA	1,325	1,133	110	82	130	299	137	162	172
1960	5,795	3,578	827	356	NA	1,534	478	383	NA	1,543	1,338	110	95	151	320	135	185	203
1961	6,736	4,334	1,023	361	NA	1,923	559	468	NA	1,609	1,399	111	98	177	377	165	212	239
1962	8,021	5,356	1,108	629	NA	2,399	649	572	NA	1,733	1,517	110	106	210	442	202	240	280
1963	9,196	6,285	1,237	639	NA	2,996	761	652	NA	1,846	1,630	107	109	250	489	217	272	326
1964	10,266	7,254	1,452	527	180	3,528	855	711	NA	1,859	1,645	107	107	298	493	201	291	361
1965	11,203	7,990	1,575	660	122	3,968	915	751	NA	1,941	1,707	111	122	362	513	219	294	397
1966	11,979	8,483	1,676	581	127	4,358	975	767	NA	2,093	1,844	119	131	435	544	237	307	423
1967	12,564	9,042	1,720	666	135	4,710	1,043	768	NA	1,962	1,694	133	135	538	571	242	329	452
1968	12,837	9,120	1,833	551	133	4,810	1,048	745	NA	2,040	1,757	143	141	594	586	240	346	497
1969	12,652	8,904	1,976	446	134	4,667	986	696	NA	1,959	1,660	143	156	620	614	243	372	554
1970	12,367	8,608	1,934	420	124	4,551	910	669	NA	1,827	1,528	148	151	673	642	248	394	617
1971	12,189	8,384	1,904	331	108	4,536	826	678	NA	1,804	1,494	162	147	701	667	252	414	635
1972	12,099	8,345	1,894	286	123	4,516	849	679	NA	1,776	1,455	173	148	679	685	264	421	614
1973	12,201	8,473	1,940	286	107	4,430	1,021	689	NA	1,805	1,485	174	146	664	674	268	406	584
1974	12,317	8,591	1,952	311	134	4,394	1,132	669	NA	1,791	1,464	180	147	683	695	278	416	557
1975	12,177	8,532	1,898	260	132	4,417	1,188	637	NA	1,758	1,431	179	148	658	698	289	410	531
1976	12,702	8,966	2,010	274	163	4,548	1,314	656	NA	1,830	1,499	177	154	670	722	309	413	515
1977	13,494	9,555	2,094	300	167	4,696	1,629	669	NA	1,914	1,557	198	159	742	768	329	439	515
1978	14,509	10,344	2,165	323	195	4,974	1,958	728	NA	2,012	1,628	221	164	826	788	348	441	539
1979	15,051	10,691	2,129	308	199	5,204	2,061	789	NA	2,119	1,709	244	166	892	801	363	438	547
1980	15,471	10,913	2,125	298	210	5,366	2,106	809	NA	2,255	1,815	273	167	954	811	376	435	538
1981	15,784	10,868	2,153	263	220	5,341	2,082	810	NA	2,566	2,105	293	168	987	821	389	432	542
1982	16,397	11,070	2,297	382	193	5,245	2,122	832	NA	2,798	2,299	325	174	1,081	893	415	478	556
1983	17,582	11,736	2,515	502	170	5,355	2,304	889	NA	3,116	2,555	377	184	1,185	970	451	519	575
1984	18,901	12,350	2,627	476	190	5,720	2,418	919	NA	3,617	2,984	438	195	1,281	1,044	492	553	610
1985	20,200	12,951	2,643	486	178	6,250	2,470	924	NA	3,956	3,220	528	207	1,460	1,136	539	597	698
1986	22,954	13,747	2,690	576	155	6,801	2,595	929	NA	5,484	4,642	619	223	1,676	1,243	596	648	804
1987	23,912	14,385	2,639	771	183	7,124	2,757	912	NA	5,519	4,618	663	238	1,804	1,356	653	703	849
1988	24,701	15,115	2,638	818	420	7,401	2,866	943	30	5,329	4,372	704	253	1,907	1,471	714	757	879
1989	26,310	16,105	2,773	1,184	478	7,712	2,870	1,033	56	5,635	4,602	765	267	2,058	1,593	777	816	919

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-10.

U.S. inflation-adjusted basic research expenditures, by source of funds and performer: 1953–2000
 (Millions of constant 1996 dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCS ^a	U&Cs	FFRDCS ^c	Nonprofit	FFRDCS ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1990	26,667	16,296	2,680	1,005	577	7,962	2,903	1,095	75	5,444	4,346	815	283	2,230	1,718	844	874	979
1991	30,338	17,114	2,652	1,395	514	8,278	3,033	1,155	86	7,983	6,831	852	300	2,372	1,852	920	932	1,017
1992	30,082	17,132	2,634	775	516	8,774	3,147	1,213	73	7,541	6,333	887	321	2,398	1,987	1,014	973	1,025
1993	30,573	17,450	2,787	495	523	9,182	3,156	1,230	77	7,587	6,338	905	344	2,411	2,112	1,117	995	1,012
1994	30,807	17,395	2,653	454	524	9,514	2,989	1,184	78	7,627	6,331	926	370	2,505	2,249	1,235	1,014	1,032
1995	30,132	17,272	2,741	194	540	9,814	2,713	1,193	77	6,844	5,483	963	398	2,557	2,370	1,364	1,006	1,089
1996	32,812	18,082	2,680	650	708	10,085	2,632	1,248	79	8,306	6,848	1,030	428	2,738	2,538	1,510	1,028	1,148
1997	35,576	18,726	2,693	1,009	613	10,405	2,609	1,291	106	10,136	8,598	1,097	440	2,936	2,611	1,527	1,084	1,167
1998	40,006	19,970	2,909	1,285	550	11,004	2,601	1,415	206	12,979	11,336	1,170	473	3,076	2,801	1,653	1,148	1,179
1999	42,593	21,132	3,161	1,155	619	11,601	2,633	1,628	335	13,999	12,230	1,252	517	3,265	2,974	1,761	1,213	1,223
2000	44,807	21,804	3,297	1,103	658	12,026	2,628	1,776	317	15,174	13,281	1,329	564	3,435	3,130	1,862	1,268	1,264

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, basic research of industry FFRDCs were not separated out from total federal support to the industrial sector for basic research. Thus, the figure for federal support to industry for basic research includes support for basic research at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

^eBecause of limitations in the survey information, data on nonfederal government funding to other performers are not available, and are consequently included in other sectors's support for their own R&D performance. For example, nonfederal government support to nonprofits is included in nonprofits' support for their own R&D.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-11.

U.S. applied research expenditures, by performing sector and source of funds: 1953–2000
 (Millions of current dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry			Industry FFRDCS ^a	Universities & colleges					U&C FFRDCS	Other nonprofit institutions				Nonprofit FFRDCS ^a	
	Total	Federal Gov't	Total	Federal Gov't	Industry ^b		Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1953	1,289	347	726	288	438	NA	134	59	30	7	28	10	48	35	14	11	10	NA
1954	1,378	330	814	322	492	NA	137	60	32	8	28	10	58	40	16	13	11	NA
1955	1,514	333	928	368	560	NA	142	63	32	9	27	11	68	43	18	14	11	NA
1956	1,928	387	1,268	474	794	NA	146	65	33	10	27	11	79	49	21	14	14	NA
1957	2,414	446	1,670	678	992	NA	147	63	34	12	27	11	94	58	24	14	20	NA
1958	2,758	516	1,911	774	1,137	NA	152	66	35	12	27	12	111	69	30	14	25	NA
1959	2,940	577	1,991	813	1,178	NA	167	78	37	13	28	12	121	85	43	15	27	NA
1960	3,065	615	2,029	833	1,196	NA	186	93	39	13	29	12	129	108	63	17	28	NA
1961	3,123	668	1,977	812	1,165	NA	199	104	40	13	30	13	145	135	83	17	35	NA
1962	3,698	709	2,449	1,011	1,438	NA	216	119	41	14	30	13	163	162	98	19	45	NA
1963	3,865	809	2,457	1,007	1,450	NA	230	128	42	14	32	14	186	183	115	19	49	NA
1964	4,201	947	2,538	978	1,560	62	256	142	45	14	37	18	203	196	130	19	47	NA
1965	4,374	994	2,612	992	1,620	46	304	176	46	13	42	27	206	213	140	21	52	NA
1966	4,653	1,012	2,790	986	1,804	53	351	208	47	14	48	34	213	234	153	24	57	NA
1967	4,848	1,069	2,832	983	1,849	83	389	238	46	16	54	36	225	251	166	25	60	NA
1968	5,137	1,112	3,037	956	2,081	87	405	250	46	16	55	39	221	276	186	28	62	NA
1969	5,454	1,229	3,192	920	2,272	95	417	257	48	16	54	43	213	308	210	32	66	NA
1970	5,752	1,334	3,330	952	2,378	97	451	280	51	18	56	47	213	328	225	33	70	NA
1971	5,833	1,355	3,348	907	2,441	67	499	306	61	19	67	47	216	349	241	34	74	NA
1972	6,147	1,434	3,407	845	2,562	107	619	391	74	21	82	52	224	357	243	35	79	NA
1973	6,655	1,527	3,715	883	2,832	110	725	450	88	26	100	62	203	376	257	36	83	NA
1974	7,344	1,652	4,168	905	3,263	120	794	477	96	32	118	72	191	420	290	39	91	NA
1975	8,091	1,912	4,431	991	3,440	139	934	550	113	39	141	92	219	456	315	42	100	NA
1976	8,976	2,068	4,945	1,033	3,912	167	1,042	596	127	45	166	109	263	492	338	45	109	NA
1977	9,670	2,081	5,424	1,113	4,311	212	1,126	626	134	51	194	121	305	523	355	48	120	NA
1978	10,710	2,242	6,065	1,195	4,870	235	1,247	676	151	61	232	128	329	592	409	52	132	NA
1979	12,117	2,415	6,975	1,305	5,670	250	1,418	793	161	71	263	129	380	680	480	55	144	NA
1980	13,745	2,546	8,175	1,625	6,550	275	1,622	912	174	88	308	140	421	706	489	60	158	NA
1981	16,393	2,731	10,401	2,042	8,359	298	1,781	953	199	108	363	159	423	758	521	64	173	NA
1982	18,286	2,802	11,956	2,593	9,363	367	1,915	1,007	207	121	402	178	439	808	550	69	189	NA
1983	20,394	2,991	13,513	3,227	10,286	414	2,116	1,122	215	141	443	194	494	866	585	74	207	NA
1984	22,517	2,961	15,218	3,677	11,541	547	2,332	1,226	234	168	491	212	561	899	594	79	226	NA
1985	25,403	3,135	17,625	4,717	12,908	630	2,527	1,296	262	198	547	224	573	913	581	85	247	NA
1986	27,251	3,204	19,131	4,049	15,082	629	2,779	1,393	298	229	620	240	547	961	600	91	270	NA
1987	27,914	3,366	19,190	4,037	15,153	623	3,219	1,643	333	260	707	276	531	986	593	98	295	NA
1988	29,545	3,362	20,377	3,846	16,531	371	3,779	1,957	377	302	818	325	565	1,026	599	105	322	66
1989	32,279	3,566	22,317	4,324	17,993	374	4,188	2,120	417	347	933	370	605	1,159	695	112	352	70

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-11.

U.S. applied research expenditures, by performing sector and source of funds: 1953–2000
 (Millions of current dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry			Industry FFRDCS ^a	Universities & colleges					U&C FFRDCS	Other nonprofit institutions				Nonprofit FFRDCS ^a	
	Total	Federal Gov't	Total	Federal Gov't	Industry ^b		Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1990	34,974	3,652	24,399	5,967	18,432	386	4,405	2,139	453	377	1,031	404	767	1,284	780	120	384	81
1991	38,632	4,094	27,013	5,588	21,425	433	4,608	2,230	468	392	1,091	428	929	1,468	921	129	419	86
1992	37,938	4,337	25,660	4,476	21,184	507	4,879	2,412	479	414	1,120	454	946	1,528	933	138	456	81
1993	37,285	4,838	24,251	4,295	19,956	435	5,145	2,538	495	443	1,181	487	969	1,544	900	148	497	103
1994	36,613	4,985	22,988	3,616	19,372	503	5,385	2,640	517	464	1,256	508	981	1,659	960	158	541	111
1995	40,999	4,952	26,919	3,164	23,755	535	5,653	2,774	558	494	1,311	516	1,119	1,692	934	170	589	129
1996	43,169	4,872	29,010	3,640	25,370	231	5,870	2,856	582	522	1,388	522	1,283	1,781	960	182	640	122
1997	47,211	4,997	32,430	2,648	29,782	213	6,152	2,900	604	568	1,519	561	1,364	1,926	1,011	205	711	128
1998	45,702	5,146	30,341	2,533	27,808	230	6,475	2,957	631	626	1,646	614	1,326	2,062	1,060	223	779	123
1999	51,632	5,503	35,367	3,440	31,927	274	6,814	3,075	658	673	1,756	652	1,276	2,284	1,194	247	842	114
2000	55,041	5,826	37,648	2,252	35,396	285	7,260	3,259	693	729	1,884	695	1,401	2,504	1,320	275	909	117

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, applied research of industry FFRDCs were not separated out from total Federal support to the industrial sector for applied research. Thus, the figure for Federal support to industry for applied research includes support for applied research at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-12.

U.S. inflation-adjusted applied research expenditures, by performing sector and source of funds: 1953–2000
 (Millions of constant 1996 dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry		Industry FFRDCS ^a	Universities & colleges					U&C FFRDCS	Other nonprofit institutions			Nonprofit FFRDCS ^a			
	Total	Federal Gov't	Total	Federal Gov't		Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1953	6,696	1,803	3,771	1,496	2,275	NA	694	306	157	34	145	52	247	182	73	57	52	NA
1954	7,088	1,695	4,187	1,656	2,531	NA	702	306	162	39	144	51	298	206	82	67	57	NA
1955	7,652	1,684	4,692	1,860	2,831	NA	715	319	163	43	137	53	344	217	91	71	56	NA
1956	9,425	1,890	6,200	2,318	3,883	NA	714	318	162	49	132	54	384	237	100	68	68	NA
1957	11,422	2,108	7,903	3,209	4,695	NA	693	298	161	54	128	52	445	272	111	66	95	NA
1958	12,745	2,384	8,831	3,577	5,254	NA	700	303	163	55	126	53	511	319	139	65	116	NA
1959	13,435	2,635	9,100	3,716	5,384	NA	763	354	169	57	128	55	551	386	194	69	123	NA
1960	13,813	2,769	9,144	3,754	5,390	NA	836	419	174	59	130	54	579	484	282	77	126	NA
1961	13,917	2,977	8,810	3,619	5,192	NA	885	461	178	58	132	56	646	599	368	76	156	NA
1962	16,260	3,116	10,770	4,446	6,324	NA	950	521	178	59	134	57	715	710	429	84	198	NA
1963	16,802	3,517	10,683	4,378	6,304	NA	998	554	183	61	141	59	809	796	500	83	213	NA
1964	17,999	4,055	10,874	4,190	6,684	266	1,095	608	194	58	160	75	870	840	557	81	201	NA
1965	18,392	4,178	10,984	4,172	6,812	193	1,276	738	195	55	177	111	864	896	589	88	219	NA
1966	19,021	4,137	11,406	4,031	7,375	217	1,435	850	192	57	198	137	871	955	623	98	233	NA
1967	19,230	4,238	11,234	3,899	7,334	329	1,541	942	181	61	214	143	893	996	658	99	238	NA
1968	19,532	4,226	11,548	3,635	7,913	331	1,540	949	175	61	209	146	838	1,049	707	106	236	NA
1969	19,769	4,455	11,569	3,335	8,235	344	1,511	930	174	58	195	154	772	1,116	761	116	239	NA
1970	19,795	4,590	11,459	3,276	8,183	334	1,550	962	176	60	192	160	733	1,129	774	114	241	NA
1971	19,112	4,440	10,970	2,972	7,998	220	1,635	1,003	198	61	219	154	706	1,142	788	111	242	NA
1972	19,318	4,506	10,707	2,656	8,052	336	1,944	1,227	233	64	257	162	704	1,120	762	110	248	NA
1973	19,808	4,546	11,057	2,628	8,429	327	2,156	1,338	261	77	297	183	603	1,119	765	107	247	NA
1974	20,055	4,512	11,382	2,471	8,910	328	2,167	1,301	262	86	322	195	520	1,146	792	106	249	NA
1975	20,213	4,776	11,069	2,476	8,594	347	2,333	1,373	283	96	351	230	547	1,140	787	104	249	NA
1976	21,221	4,890	11,690	2,442	9,248	395	2,463	1,408	301	105	391	258	621	1,162	798	106	259	NA
1977	21,479	4,621	12,048	2,472	9,576	471	2,500	1,389	299	113	431	268	676	1,162	789	107	267	NA
1978	22,205	4,648	12,575	2,478	10,097	487	2,585	1,401	314	125	481	264	683	1,227	848	107	273	NA
1979	23,191	4,622	13,349	2,498	10,852	478	2,713	1,517	309	137	504	247	728	1,301	919	106	276	NA
1980	24,097	4,463	14,332	2,849	11,483	482	2,844	1,599	304	155	540	246	738	1,238	857	104	277	NA
1981	26,283	4,379	16,676	3,274	13,402	478	2,855	1,527	319	173	581	255	679	1,215	836	102	277	NA
1982	27,602	4,229	18,047	3,914	14,133	554	2,890	1,519	313	183	607	268	663	1,219	830	104	285	NA
1983	29,607	4,343	19,618	4,685	14,933	601	3,072	1,629	312	205	643	282	717	1,257	849	107	300	NA
1984	31,519	4,145	21,302	5,147	16,155	766	3,264	1,716	328	235	688	297	785	1,258	831	111	317	NA
1985	34,473	4,254	23,918	6,401	17,517	855	3,429	1,759	355	268	743	304	778	1,240	789	115	336	NA
1986	36,185	4,254	25,403	5,376	20,027	835	3,690	1,849	395	304	824	318	726	1,276	797	121	359	NA
1987	35,981	4,338	24,736	5,204	19,532	803	4,149	2,118	429	335	912	356	684	1,271	764	126	381	NA
1988	36,835	4,191	25,405	4,795	20,610	463	4,712	2,440	470	377	1,020	405	704	1,279	746	131	402	82
1989	38,765	4,283	26,801	5,193	21,608	449	5,029	2,546	501	417	1,121	445	727	1,392	834	135	423	84

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-12.

U.S. inflation-adjusted applied research expenditures, by performing sector and source of funds: 1953–2000
 (Millions of constant 1996 dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry			Industry FFRDCS ^a	Universities & colleges					U&C FFRDCS	Other nonprofit institutions				Nonprofit FFRDCS ^a	
	Total	Federal Gov't	Total	Federal Gov't	Industry ^b		Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1990	40,428	4,222	28,204	6,897	21,306	446	5,092	2,473	523	436	1,192	467	887	1,484	901	139	444	94
1991	43,087	4,566	30,128	6,232	23,896	483	5,139	2,487	522	437	1,216	478	1,037	1,638	1,027	144	467	96
1992	41,309	4,722	27,940	4,874	23,066	552	5,313	2,627	521	451	1,219	495	1,030	1,664	1,016	150	497	89
1993	39,644	5,144	25,785	4,567	21,219	463	5,470	2,699	527	471	1,255	518	1,030	1,642	957	157	528	109
1994	38,134	5,192	23,943	3,766	20,177	524	5,609	2,749	539	483	1,308	530	1,022	1,728	999	165	563	116
1995	41,793	5,048	27,440	3,225	24,215	545	5,762	2,828	569	503	1,336	526	1,140	1,725	952	173	600	131
1996	43,169	4,872	29,010	3,640	25,370	231	5,870	2,856	582	522	1,388	522	1,283	1,781	960	182	640	122
1997	46,308	4,901	31,810	2,597	29,212	209	6,035	2,845	592	557	1,490	550	1,338	1,890	992	201	697	126
1998	44,277	4,985	29,394	2,454	26,941	223	6,273	2,865	611	607	1,595	595	1,285	1,997	1,027	216	755	119
1999	49,281	5,253	33,757	3,283	30,473	262	6,504	2,935	628	643	1,676	623	1,218	2,180	1,140	236	804	109
2000	51,483	5,450	35,214	2,106	33,108	267	6,791	3,048	648	682	1,762	650	1,310	2,342	1,235	257	850	109

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, applied research of industry FFRDCs were not separated out from total Federal support to the industrial sector for applied research. Thus, the figure for Federal support to industry for applied research includes support for applied research at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-13.

U.S. applied research expenditures, by source of funds and performer: 1953–2000

(Millions of current dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions				Non-Fed. Govt.
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1953	1,289	756	347	288	NA	59	48	14	NA	456	438	7	11	28	20	10	10	30
1954	1,378	785	330	322	NA	60	58	16	NA	513	492	8	13	28	21	11	10	32
1955	1,514	850	333	368	NA	63	68	18	NA	583	560	9	14	27	22	11	11	32
1956	1,928	1,025	387	474	NA	65	79	21	NA	818	794	10	14	27	25	14	11	33
1957	2,414	1,304	446	678	NA	63	94	24	NA	1,018	992	12	14	27	31	20	11	34
1958	2,758	1,496	516	774	NA	66	111	30	NA	1,163	1,137	12	14	27	37	25	12	35
1959	2,940	1,630	577	813	NA	78	121	43	NA	1,206	1,178	13	15	28	39	27	12	37
1960	3,065	1,732	615	833	NA	93	129	63	NA	1,226	1,196	13	17	29	40	28	12	39
1961	3,123	1,811	668	812	NA	104	145	83	NA	1,195	1,165	13	17	30	48	35	13	40
1962	3,698	2,098	709	1,011	NA	119	163	98	NA	1,471	1,438	14	19	30	58	45	13	41
1963	3,865	2,245	809	1,007	NA	128	186	115	NA	1,483	1,450	14	19	32	63	49	14	42
1964	4,201	2,462	947	978	62	142	203	130	NA	1,593	1,560	14	19	37	65	47	18	45
1965	4,374	2,553	994	992	46	176	206	140	NA	1,654	1,620	13	21	42	79	52	27	46
1966	4,653	2,625	1,012	986	53	208	213	153	NA	1,842	1,804	14	24	48	91	57	34	47
1967	4,848	2,763	1,069	983	83	238	225	166	NA	1,890	1,849	16	25	54	96	60	36	46
1968	5,137	2,811	1,112	956	87	250	221	186	NA	2,125	2,081	16	28	55	101	62	39	46
1969	5,454	2,924	1,229	920	95	257	213	210	NA	2,320	2,272	16	32	54	109	66	43	48
1970	5,752	3,100	1,334	952	97	280	213	225	NA	2,429	2,378	18	33	56	117	70	47	51
1971	5,833	3,091	1,355	907	67	306	216	241	NA	2,494	2,441	19	34	67	121	74	47	61
1972	6,147	3,243	1,434	845	107	391	224	243	NA	2,618	2,562	21	35	82	131	79	52	74
1973	6,655	3,429	1,527	883	110	450	203	257	NA	2,894	2,832	26	36	100	145	83	62	88
1974	7,344	3,634	1,652	905	120	477	191	290	NA	3,333	3,263	32	39	118	163	91	72	96
1975	8,091	4,125	1,912	991	139	550	219	315	NA	3,520	3,440	39	42	141	192	100	92	113
1976	8,976	4,464	2,068	1,033	167	596	263	338	NA	4,001	3,912	45	45	166	218	109	109	127
1977	9,670	4,691	2,081	1,113	212	626	305	355	NA	4,410	4,311	51	48	194	241	120	121	134
1978	10,710	5,085	2,242	1,195	235	676	329	409	NA	4,982	4,870	61	52	232	259	132	128	151
1979	12,117	5,623	2,415	1,305	250	793	380	480	NA	5,797	5,670	71	55	263	273	144	129	161
1980	13,745	6,268	2,546	1,625	275	912	421	489	NA	6,698	6,550	88	60	308	298	158	140	174
1981	16,393	6,969	2,731	2,042	298	953	423	521	NA	8,531	8,359	108	64	363	332	173	159	199
1982	18,286	7,757	2,802	2,593	367	1,007	439	550	NA	9,553	9,363	121	69	402	367	189	178	207
1983	20,394	8,834	2,991	3,227	414	1,122	494	585	NA	10,501	10,286	141	74	443	401	207	194	215
1984	22,517	9,566	2,961	3,677	547	1,226	561	594	NA	11,788	11,541	168	79	491	438	226	212	234
1985	25,403	10,933	3,135	4,717	630	1,296	573	581	NA	13,190	12,908	198	85	547	471	247	224	262
1986	27,251	10,421	3,204	4,049	629	1,393	547	600	NA	15,402	15,082	229	91	620	510	270	240	298
1987	27,914	10,792	3,366	4,037	623	1,643	531	593	NA	15,511	15,153	260	98	707	571	295	276	333
1988	29,545	10,766	3,362	3,846	371	1,957	565	599	66	16,938	16,531	302	105	818	647	322	325	377
1989	32,279	11,754	3,566	4,324	374	2,120	605	695	70	18,452	17,993	347	112	933	722	352	370	417

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 4-13.

U.S. applied research expenditures, by source of funds and performer: 1953–2000
 (Millions of current dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1990	34,974	13,772	3,652	5,967	386	2,139	767	780	81	18,930	18,432	377	120	1,031	788	384	404	453
1991	38,632	14,281	4,094	5,588	433	2,230	929	921	86	21,946	21,425	392	129	1,091	847	419	428	468
1992	37,938	13,693	4,337	4,476	507	2,412	946	933	81	21,736	21,184	414	138	1,120	911	456	454	479
1993	37,285	14,078	4,838	4,295	435	2,538	969	900	103	20,547	19,956	443	148	1,181	984	497	487	495
1994	36,613	13,796	4,985	3,616	503	2,640	981	960	111	19,995	19,372	464	158	1,256	1,049	541	508	517
1995	40,999	13,607	4,952	3,164	535	2,774	1,119	934	129	24,418	23,755	494	170	1,311	1,104	589	516	558
1996	43,169	13,964	4,872	3,640	231	2,856	1,283	960	122	26,074	25,370	522	182	1,388	1,162	640	522	582
1997	47,211	13,261	4,997	2,648	213	2,900	1,364	1,011	128	30,555	29,782	568	205	1,519	1,272	711	561	604
1998	45,702	13,375	5,146	2,533	230	2,957	1,326	1,060	123	28,657	27,808	626	223	1,646	1,393	779	614	631
1999	51,632	14,876	5,503	3,440	274	3,075	1,276	1,194	114	32,848	31,927	673	247	1,756	1,495	842	652	658
2000	55,041	14,460	5,826	2,252	285	3,259	1,401	1,320	117	36,400	35,396	729	275	1,884	1,604	909	695	693

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, applied research of industry FFRDCs were not separated out from total Federal support to the industrial sector for applied research. Thus, the figure for Federal support to industry for applied research includes support for applied research at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

^eBecause of limitations in the survey information, data on nonfederal government funding to other performers are not available, and are inconsequently included in other sectors's support for their own R&D performance. For example, nonfederal government support to nonprofits is included in nonprofits' support for their own R&D.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-14.

U.S. inflation-adjusted applied research expenditures, by source of funds and performer: 1953–2000
 (Millions of constant 1996 dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCS ^a	U&Cs	FFRDCS ^c	Nonprofit	FFRDCS ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1953	6,696	3,925	1,803	1,496	NA	306	247	73	NA	2,366	2,275	34	57	145	104	52	52	157
1954	7,088	4,038	1,695	1,656	NA	306	298	82	NA	2,636	2,531	39	67	144	108	57	51	162
1955	7,652	4,297	1,684	1,860	NA	319	344	91	NA	2,945	2,831	43	71	137	109	56	53	163
1956	9,425	5,010	1,890	2,318	NA	318	384	100	NA	4,000	3,883	49	68	132	122	68	54	162
1957	11,422	6,171	2,108	3,209	NA	298	445	111	NA	4,815	4,695	54	66	128	147	95	52	161
1958	12,745	6,913	2,384	3,577	NA	303	511	139	NA	5,374	5,254	55	65	126	169	116	53	163
1959	13,435	7,450	2,635	3,716	NA	354	551	194	NA	5,510	5,384	57	69	128	178	123	55	169
1960	13,813	7,803	2,769	3,754	NA	419	579	282	NA	5,525	5,390	59	77	130	180	126	54	174
1961	13,917	8,070	2,977	3,619	NA	461	646	368	NA	5,325	5,192	58	76	132	212	156	56	178
1962	16,260	9,226	3,116	4,446	NA	521	715	429	NA	6,467	6,324	59	84	134	255	198	57	178
1963	16,802	9,759	3,517	4,378	NA	554	809	500	NA	6,448	6,304	61	83	141	272	213	59	183
1964	17,999	10,546	4,055	4,190	266	608	870	557	NA	6,823	6,684	58	81	160	276	201	75	194
1965	18,392	10,734	4,178	4,172	193	738	864	589	NA	6,955	6,812	55	88	177	330	219	111	195
1966	19,021	10,730	4,137	4,031	217	850	871	623	NA	7,531	7,375	57	98	198	370	233	137	192
1967	19,230	10,960	4,238	3,899	329	942	893	658	NA	7,495	7,334	61	99	214	381	238	143	181
1968	19,532	10,686	4,226	3,635	331	949	838	707	NA	8,080	7,913	61	106	209	382	236	146	175
1969	19,769	10,597	4,455	3,335	344	930	772	761	NA	8,409	8,235	58	116	195	393	239	154	174
1970	19,795	10,669	4,590	3,276	334	962	733	774	NA	8,357	8,183	60	114	192	401	241	160	176
1971	19,112	10,128	4,440	2,972	220	1,003	706	788	NA	8,170	7,998	61	111	219	396	242	154	198
1972	19,318	10,191	4,506	2,656	336	1,227	704	762	NA	8,226	8,052	64	110	257	410	248	162	233
1973	19,808	10,206	4,546	2,628	327	1,338	603	765	NA	8,613	8,429	77	107	297	430	247	183	261
1974	20,055	9,924	4,512	2,471	328	1,301	520	792	NA	9,102	8,910	86	106	322	444	249	195	262
1975	20,213	10,305	4,776	2,476	347	1,373	547	787	NA	8,794	8,594	96	104	351	479	249	230	283
1976	21,221	10,553	4,890	2,442	395	1,408	621	798	NA	9,459	9,248	105	106	391	517	259	258	301
1977	21,479	10,419	4,621	2,472	471	1,389	676	789	NA	9,796	9,576	113	107	431	534	267	268	299
1978	22,205	10,544	4,648	2,478	487	1,401	683	848	NA	10,330	10,097	125	107	481	537	273	264	314
1979	23,191	10,761	4,622	2,498	478	1,517	728	919	NA	11,094	10,852	137	106	504	523	276	247	309
1980	24,097	10,988	4,463	2,849	482	1,599	738	857	NA	11,742	11,483	155	104	540	523	277	246	304
1981	26,283	11,173	4,379	3,274	478	1,527	679	836	NA	13,677	13,402	173	102	581	532	277	255	319
1982	27,602	11,709	4,229	3,914	554	1,519	663	830	NA	14,419	14,133	183	104	607	554	285	268	313
1983	29,607	12,825	4,343	4,685	601	1,629	717	849	NA	15,245	14,933	205	107	643	582	300	282	312
1984	31,519	13,390	4,145	5,147	766	1,716	785	831	NA	16,500	16,155	235	111	688	614	317	297	328
1985	34,473	14,836	4,254	6,401	855	1,759	778	789	NA	17,900	17,517	268	115	743	640	336	304	355
1986	36,185	13,838	4,254	5,376	835	1,849	726	797	NA	20,451	20,027	304	121	824	677	359	318	395
1987	35,981	13,911	4,338	5,204	803	2,118	684	764	NA	19,993	19,532	335	126	912	736	381	356	429
1988	36,835	13,422	4,191	4,795	463	2,440	704	746	82	21,117	20,610	377	131	1,020	807	402	405	470
1989	38,765	14,116	4,283	5,193	449	2,546	727	834	84	22,160	21,608	417	135	1,121	867	423	445	501

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-14.

U.S. inflation-adjusted applied research expenditures, by source of funds and performer: 1953–2000
 (Millions of constant 1996 dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions				Non-Fed. Govt.
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCS ^a	U&Cs	FFRDCS ^c	Nonprofit	FFRDCS ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1990	40,428	15,920	4,222	6,897	446	2,473	887	901	94	21,881	21,306	436	139	1,192	911	444	467	523
1991	43,087	15,928	4,566	6,232	483	2,487	1,037	1,027	96	24,476	23,896	437	144	1,216	945	467	478	522
1992	41,309	14,909	4,722	4,874	552	2,627	1,030	1,016	89	23,668	23,066	451	150	1,219	991	497	495	521
1993	39,644	14,968	5,144	4,567	463	2,699	1,030	957	109	21,847	21,219	471	157	1,255	1,046	528	518	527
1994	38,134	14,369	5,192	3,766	524	2,749	1,022	999	116	20,826	20,177	483	165	1,308	1,093	563	530	539
1995	41,793	13,870	5,048	3,225	545	2,828	1,140	952	131	24,891	24,215	503	173	1,336	1,126	600	526	569
1996	43,169	13,964	4,872	3,640	231	2,856	1,283	960	122	26,074	25,370	522	182	1,388	1,162	640	522	582
1997	46,308	13,008	4,901	2,597	209	2,845	1,338	992	126	29,971	29,212	557	201	1,490	1,247	697	550	592
1998	44,277	12,957	4,985	2,454	223	2,865	1,285	1,027	119	27,763	26,941	607	216	1,595	1,350	755	595	611
1999	49,281	14,199	5,253	3,283	262	2,935	1,218	1,140	109	31,352	30,473	643	236	1,676	1,427	804	623	628
2000	51,483	13,525	5,450	2,106	267	3,048	1,310	1,235	109	34,047	33,108	682	257	1,762	1,500	850	650	648

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, applied research of industry FFRDCs were not separated out from total Federal support to the industrial sector for applied research. Thus, the figure for Federal support to industry for applied research includes support for applied research at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

^eBecause of limitations in the survey information, data on nonfederal government funding to other performers are not available, and are inconsequently included in other sectors's support for their own R&D performance. For example, nonfederal government support to nonprofits is included in nonprofits' support for their own R&D.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-15.

U.S. development expenditures, by performing sector and source of funds: 1953–2000

(Millions of current dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry			Industry FFRDCs ^a	Universities & colleges					U&C FFRDCs	Other nonprofit institutions				Nonprofit FFRDCs ^a	
	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1953	3,412	567	2,753	1,123	1,630	NA	16	9	3	1	3	1	48	29	17	6	6	NA
1954	3,734	537	3,090	1,405	1,685	NA	17	9	3	1	3	1	59	32	18	7	7	NA
1955	4,189	543	3,523	1,785	1,738	NA	21	12	4	2	3	1	69	34	19	8	7	NA
1956	5,855	631	5,084	2,817	2,267	NA	25	14	4	2	4	2	81	35	20	8	7	NA
1957	6,681	728	5,790	3,616	2,174	NA	26	12	5	3	4	2	101	37	21	8	8	NA
1958	7,214	842	6,183	3,942	2,241	NA	28	13	6	3	4	2	120	42	25	8	9	NA
1959	8,463	940	7,307	4,750	2,557	NA	31	16	6	3	5	2	134	51	32	9	10	NA
1960	9,360	1,003	8,104	5,169	2,935	NA	35	19	6	3	5	2	151	69	49	10	10	NA
1961	9,930	1,090	8,536	5,347	3,189	NA	38	22	7	2	5	2	170	97	73	10	14	NA
1962	10,116	1,227	8,527	5,281	3,246	NA	40	23	8	2	6	2	190	132	103	11	18	NA
1963	11,540	1,465	9,651	6,116	3,535	NA	40	22	8	2	6	2	219	165	134	11	20	NA
1964	12,506	1,680	10,004	6,156	3,848	359	49	30	8	2	7	3	227	188	159	11	18	NA
1965	13,215	1,789	10,637	6,218	4,419	298	71	48	9	2	8	4	207	215	183	12	20	NA
1966	14,490	1,886	11,810	6,849	4,961	271	87	61	9	2	10	5	200	236	199	14	23	NA
1967	15,332	1,943	12,539	6,795	5,744	302	93	66	9	3	10	7	208	247	208	15	24	NA
1968	16,154	1,904	13,370	7,044	6,326	293	102	72	8	4	9	9	226	259	217	16	26	NA
1969	17,051	2,016	14,071	6,944	7,127	332	110	80	7	5	8	10	246	277	231	18	28	NA
1970	16,925	2,258	13,698	6,232	7,466	340	112	84	6	5	7	10	249	268	220	18	30	NA
1971	17,399	2,473	13,924	6,167	7,757	391	98	69	8	4	9	9	267	246	194	19	33	NA
1972	18,743	2,639	15,043	6,533	8,510	402	101	63	12	4	14	9	291	267	213	19	35	NA
1973	20,197	2,657	16,394	6,621	9,773	399	126	71	18	5	20	13	296	326	268	20	38	NA
1974	21,504	2,765	17,421	6,553	10,868	479	141	75	20	7	25	15	321	377	314	22	42	NA
1975	22,706	2,890	18,352	6,783	11,569	535	156	83	22	8	27	16	373	400	330	23	47	NA
1976	25,085	2,972	20,412	7,522	12,890	654	182	100	24	12	31	16	447	418	341	25	52	NA
1977	27,677	3,188	22,603	8,275	14,328	675	254	153	28	15	40	19	513	444	359	27	58	NA
1978	31,067	3,676	25,216	8,756	16,460	753	373	254	32	15	49	24	552	496	403	30	64	NA
1979	35,475	3,944	29,033	9,888	19,145	810	469	336	34	16	56	28	633	586	483	32	71	NA
1980	40,703	4,072	33,848	10,957	22,891	882	518	362	38	19	68	31	744	639	525	35	79	NA
1981	46,030	4,530	38,547	12,791	25,756	950	568	386	44	24	80	35	761	674	549	37	88	NA
1982	51,698	5,178	43,434	14,215	29,219	989	597	397	46	27	88	39	763	737	599	40	98	NA
1983	57,571	6,106	48,064	15,522	32,542	1,054	617	399	47	31	97	43	862	867	715	44	109	NA
1984	66,323	7,078	55,371	17,640	37,731	1,056	677	435	51	37	108	47	1,048	1,093	925	47	120	NA
1985	74,489	8,011	62,020	20,258	41,762	1,102	756	486	57	43	120	49	1,315	1,285	1,100	51	134	NA
1986	75,799	8,275	62,871	21,517	41,354	1,145	818	513	65	50	136	53	1,549	1,141	938	55	149	NA
1987	79,833	8,176	66,789	24,122	42,667	1,230	945	599	73	57	155	61	1,699	996	771	60	165	NA
1988	84,572	8,864	70,353	23,719	46,634	1,414	1,098	698	83	66	180	71	1,767	655	407	65	183	420
1989	87,727	9,355	72,725	21,049	51,676	1,423	1,227	773	92	76	205	81	1,786	780	507	70	203	430

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-15.

U.S. development expenditures, by performing sector and source of funds: 1953–2000

(Millions of current dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry			Industry FFRDCs ^a	Universities & colleges					U&C FFRDCs	Other nonprofit institutions				Nonprofit FFRDCs ^a		
	Total	Federal Gov't.	Total	Federal Gov't.	Industry ^b		Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non-profit	Federal Gov't
Calendar year^d																			
1990	94,008	9,700	78,376	18,966	59,410	1,438	1,407	909	99	83	226	89	1,676	920	619	75	226	490	
1991	95,081	8,778	80,286	17,256	63,030	1,383	1,533	1,011	103	86	239	94	1,514	1,054	722	82	251	533	
1992	99,793	9,098	84,569	17,181	67,388	1,372	1,595	1,054	105	91	246	100	1,435	1,125	758	88	279	599	
1993	99,676	9,071	84,757	16,083	68,674	1,038	1,698	1,126	109	97	259	107	1,346	1,191	787	95	309	574	
1994	103,023	8,823	87,890	16,209	71,681	1,196	1,814	1,211	114	102	276	112	1,466	1,261	815	103	343	573	
1995	113,053	9,262	97,342	17,824	79,518	1,208	1,809	1,177	123	108	288	113	1,592	1,236	744	111	381	603	
1996	121,348	9,033	105,863	17,066	88,797	1,358	1,787	1,125	128	115	305	115	1,495	1,241	698	120	423	571	
1997	128,898	9,077	113,184	18,121	95,063	1,292	1,921	1,207	132	125	333	123	1,462	1,378	687	155	536	585	
1998	139,875	9,214	123,734	18,227	105,507	1,280	2,046	1,274	139	137	361	135	1,577	1,516	760	168	588	507	
1999	147,886	9,517	131,060	15,512	115,548	1,450	2,110	1,290	144	148	385	143	1,663	1,641	819	187	636	445	
2000	161,679	9,792	144,254	16,205	128,050	1,586	2,238	1,360	152	160	413	153	1,592	1,754	860	208	686	463	

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, development expenditures of industry FFRDCs were not separated out from total Federal support to the industrial sector for development. Thus, the figure for Federal support to industry for development includes support for development at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-16.

U.S. inflation-adjusted development expenditures, by performing sector and source of funds: 1953–2000

(Millions of constant 1996 dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry		Industry FFRDCS ^a	Universities & colleges						U&C FFRDCS	Other nonprofit institutions				Nonprofit FFRDCS ^a	
	Total	Federal Gov't	Total	Federal Gov't		Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't	Total	Federal Gov't	Industry	Non- profit	
Funding sector:	Total U.S.	Federal Gov't	Total	Federal Gov't	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non- profit	Federal Gov't
Calendar year^d																		
1953	17,722	2,943	14,301	5,834	8,468	NA	83	44	15	5	14	5	247	148	86	31	31	NA
1954	19,208	2,762	15,895	7,227	8,668	NA	87	44	18	5	16	5	301	162	90	36	36	NA
1955	21,178	2,743	17,811	9,024	8,787	NA	106	58	19	8	16	5	349	169	94	40	35	NA
1956	28,628	3,083	24,861	13,775	11,086	NA	122	66	22	10	18	7	394	169	95	39	34	NA
1957	31,619	3,443	27,402	17,113	10,289	NA	123	57	25	12	20	9	478	173	97	38	38	NA
1958	33,334	3,889	28,572	18,216	10,356	NA	127	58	26	14	20	9	555	192	113	37	42	NA
1959	38,679	4,296	33,396	21,709	11,686	NA	142	71	27	14	21	9	612	233	146	41	46	NA
1960	42,181	4,518	36,521	23,294	13,227	NA	155	86	28	11	21	9	678	309	219	45	45	NA
1961	44,249	4,855	38,039	23,828	14,211	NA	167	96	31	9	23	9	755	432	325	45	62	NA
1962	44,483	5,396	37,498	23,223	14,274	NA	176	99	34	9	25	9	836	578	451	48	79	NA
1963	50,172	6,370	41,961	26,591	15,370	NA	174	96	34	9	26	9	950	717	583	48	87	NA
1964	53,582	7,198	42,862	26,375	16,487	1,538	208	126	34	9	28	11	970	805	681	47	77	NA
1965	55,572	7,521	44,731	26,148	18,583	1,253	296	202	36	8	33	17	868	902	767	50	84	NA
1966	59,238	7,711	48,283	28,001	20,282	1,108	356	249	38	8	39	20	818	963	812	57	94	NA
1967	60,815	7,707	49,738	26,954	22,785	1,198	369	260	34	10	40	26	825	978	823	60	95	NA
1968	61,420	7,240	50,837	26,783	24,053	1,114	386	272	29	15	35	34	859	985	825	61	99	NA
1969	61,800	7,306	51,000	25,169	25,832	1,203	397	288	26	18	29	36	892	1,002	835	65	101	NA
1970	58,241	7,770	47,137	21,445	25,692	1,170	385	287	22	17	24	34	857	922	757	62	103	NA
1971	57,007	8,101	45,623	20,206	25,416	1,281	321	226	26	13	28	28	875	806	636	62	108	NA
1972	58,904	8,294	47,275	20,531	26,744	1,263	317	196	39	11	43	28	915	839	669	60	110	NA
1973	60,109	7,908	48,792	19,705	29,086	1,188	374	210	52	15	59	37	879	969	796	60	113	NA
1974	58,723	7,552	47,572	17,895	29,678	1,308	384	203	55	18	67	41	877	1,030	856	59	115	NA
1975	56,722	7,219	45,846	16,945	28,901	1,336	390	206	55	20	69	40	931	1,000	824	58	117	NA
1976	59,303	7,025	48,255	17,783	30,473	1,546	430	235	57	27	74	38	1,057	989	806	60	123	NA
1977	61,476	7,081	50,207	18,381	31,826	1,499	564	340	62	32	89	41	1,138	987	797	61	128	NA
1978	64,414	7,622	52,283	18,155	34,128	1,561	773	526	66	30	102	49	1,145	1,029	835	61	133	NA
1979	67,895	7,548	55,566	18,924	36,641	1,550	899	644	65	30	107	53	1,212	1,121	923	61	137	NA
1980	71,359	7,140	59,341	19,209	40,131	1,546	908	634	67	34	119	54	1,305	1,120	920	61	139	NA
1981	73,801	7,264	61,804	20,508	41,295	1,523	910	619	70	38	128	56	1,219	1,081	880	60	141	NA
1982	78,035	7,816	65,561	21,457	44,104	1,493	901	600	69	40	133	59	1,152	1,112	904	61	147	NA
1983	83,581	8,864	69,779	22,535	47,244	1,530	896	580	69	45	141	62	1,252	1,259	1,038	63	158	NA
1984	92,838	9,908	77,507	24,692	52,815	1,478	948	609	72	52	151	65	1,467	1,530	1,295	66	169	NA
1985	101,084	10,871	84,163	27,491	56,673	1,495	1,026	660	78	59	163	67	1,785	1,744	1,493	69	182	NA
1986	100,650	10,988	83,483	28,571	54,912	1,520	1,086	682	87	67	181	70	2,057	1,516	1,245	73	197	NA
1987	102,905	10,538	86,090	31,093	54,997	1,585	1,218	772	94	74	200	78	2,190	1,283	994	77	213	NA
1988	105,438	11,051	87,711	29,571	58,140	1,763	1,369	870	103	83	224	89	2,203	817	508	80	228	524
1989	105,352	11,235	87,336	25,278	62,058	1,709	1,473	928	110	91	246	98	2,145	937	609	84	244	517

See explanatory notes, if any, and SOURCE at end of table.

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Appendix table 4-16.

U.S. inflation-adjusted development expenditures, by performing sector and source of funds: 1953–2000

(Millions of constant 1996 dollars)

Performing sector:	Total U.S.	Federal Gov't.	Industry			Industry FFRDCS ^a						U&C FFRDCS				Other nonprofit institutions				Nonprofit FFRDCS ^a
	Total	Federal Gov't.	Total	Federal Gov't.	Industry ^b	Federal Gov't	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Total	Federal Gov't	Industry	Non-profit	Federal Gov't		
Calendar year^d																				
1990	108,667	11,213	90,598	21,923	68,674	1,662	1,626	1,051	115	96	262	103	1,938	1,064	716	87	261	567		
1991	106,046	9,790	89,545	19,246	70,299	1,542	1,710	1,127	115	96	267	105	1,689	1,176	805	91	280	594		
1992	108,659	9,906	92,083	18,708	73,375	1,494	1,737	1,147	114	99	268	109	1,562	1,225	825	96	303	653		
1993	105,982	9,645	90,119	17,100	73,019	1,104	1,805	1,197	116	103	276	114	1,431	1,267	836	101	329	611		
1994	107,304	9,190	91,543	16,883	74,660	1,246	1,889	1,262	118	106	287	116	1,526	1,314	849	107	358	596		
1995	115,242	9,441	99,227	18,169	81,058	1,231	1,844	1,200	125	110	293	115	1,623	1,260	758	113	389	615		
1996	121,348	9,033	105,863	17,066	88,797	1,358	1,787	1,125	128	115	305	115	1,495	1,241	698	120	423	571		
1997	126,432	8,903	111,019	17,774	93,245	1,267	1,884	1,184	130	122	327	121	1,434	1,351	673	152	526	573		
1998	135,512	8,927	119,874	17,658	102,216	1,240	1,983	1,234	134	133	350	131	1,528	1,469	736	163	570	491		
1999	141,153	9,083	125,093	14,806	110,287	1,384	2,014	1,231	138	141	368	137	1,587	1,567	781	178	607	424		
2000	151,229	9,159	134,931	15,157	119,773	1,484	2,093	1,272	142	150	387	143	1,489	1,641	805	194	642	433		

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, development expenditures of industry FFRDCs were not separated out from total Federal support to the industrial sector for development. Thus, the figure for Federal support to industry for development includes support for development at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-17.

U.S. development expenditures, by source of funds and performer: 1953–2000

(Millions of current dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1953	3,412	1,762	567	1,123	NA	9	48	17	NA	1,637	1,630	1	6	3	7	6	1	3
1954	3,734	2,027	537	1,405	NA	9	59	18	NA	1,693	1,685	1	7	3	8	7	1	3
1955	4,189	2,427	543	1,785	NA	12	69	19	NA	1,748	1,738	2	8	3	8	7	1	4
1956	5,855	3,561	631	2,817	NA	14	81	20	NA	2,277	2,267	2	8	4	9	7	2	4
1957	6,681	4,477	728	3,616	NA	12	101	21	NA	2,185	2,174	3	8	4	10	8	2	5
1958	7,214	4,941	842	3,942	NA	13	120	25	NA	2,252	2,241	3	8	4	11	9	2	6
1959	8,463	5,872	940	4,750	NA	16	134	32	NA	2,569	2,557	3	9	5	12	10	2	6
1960	9,360	6,390	1,003	5,169	NA	19	151	49	NA	2,948	2,935	3	10	5	12	10	2	6
1961	9,930	6,701	1,090	5,347	NA	22	170	73	NA	3,201	3,189	2	10	5	16	14	2	7
1962	10,116	6,823	1,227	5,281	NA	23	190	103	NA	3,259	3,246	2	11	6	20	18	2	8
1963	11,540	7,956	1,465	6,116	NA	22	219	134	NA	3,548	3,535	2	11	6	22	20	2	8
1964	12,506	8,610	1,680	6,156	359	30	227	159	NA	3,861	3,848	2	11	7	21	18	3	8
1965	13,215	8,742	1,789	6,218	298	48	207	183	NA	4,433	4,419	2	12	8	24	20	4	9
1966	14,490	9,466	1,886	6,849	271	61	200	199	NA	4,977	4,961	2	14	10	28	23	5	9
1967	15,332	9,521	1,943	6,795	302	66	208	208	NA	5,762	5,744	3	15	10	31	24	7	9
1968	16,154	9,756	1,904	7,044	293	72	226	217	NA	6,346	6,326	4	16	9	35	26	9	8
1969	17,051	9,848	2,016	6,944	332	80	246	231	NA	7,150	7,127	5	18	8	38	28	10	7
1970	16,925	9,382	2,258	6,232	340	84	249	220	NA	7,489	7,466	5	18	7	40	30	10	6
1971	17,399	9,561	2,473	6,167	391	69	267	194	NA	7,780	7,757	4	19	9	42	33	9	8
1972	18,743	10,141	2,639	6,533	402	63	291	213	NA	8,533	8,510	4	19	14	44	35	9	12
1973	20,197	10,311	2,657	6,621	399	71	296	268	NA	9,798	9,773	5	20	20	51	38	13	18
1974	21,504	10,506	2,765	6,553	479	75	321	314	NA	10,896	10,868	7	22	25	57	42	15	20
1975	22,706	10,993	2,890	6,783	535	83	373	330	NA	11,600	11,569	8	23	27	63	47	16	22
1976	25,085	12,035	2,972	7,522	654	100	447	341	NA	12,927	12,890	12	25	31	68	52	16	24
1977	27,677	13,162	3,188	8,275	675	153	513	359	NA	14,370	14,328	15	27	40	76	58	19	28
1978	31,067	14,394	3,676	8,756	753	254	552	403	NA	16,504	16,460	15	30	49	88	64	24	32
1979	35,475	16,094	3,944	9,888	810	336	633	483	NA	19,193	19,145	16	32	56	99	71	28	34
1980	40,703	17,542	4,072	10,957	882	362	744	525	NA	22,945	22,891	19	35	68	110	79	31	38
1981	46,030	19,967	4,530	12,791	950	386	761	549	NA	25,817	25,756	24	37	80	123	88	35	44
1982	51,698	22,142	5,178	14,215	989	397	763	599	NA	29,286	29,219	27	40	88	137	98	39	46
1983	57,571	24,658	6,106	15,522	1,054	399	862	715	NA	32,617	32,542	31	44	97	151	109	43	47
1984	66,323	28,182	7,078	17,640	1,056	435	1,048	925	NA	37,815	37,731	37	47	108	167	120	47	51
1985	74,489	32,272	8,011	20,258	1,102	486	1,315	1,100	NA	41,856	41,762	43	51	120	183	134	49	57
1986	75,799	33,937	8,275	21,517	1,145	513	1,549	938	NA	41,459	41,354	50	55	136	201	149	53	65
1987	79,833	36,596	8,176	24,122	1,230	599	1,699	771	NA	42,784	42,667	57	60	155	226	165	61	73
1988	84,572	37,290	8,864	23,719	1,414	698	1,767	407	420	46,765	46,634	66	65	180	255	183	71	83
1989	87,727	35,324	9,355	21,049	1,423	773	1,786	507	430	51,822	51,676	76	70	205	285	203	81	92

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-17.

U.S. development expenditures, by source of funds and performer: 1953–2000

(Millions of current dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions				Non-Fed. Govt.
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCS ^a	U&Cs	FFRDCS ^c	Nonprofit	FFRDCS ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1990	94,008	33,799	9,700	18,966	1,438	909	1,676	619	490	59,568	59,410	83	75	226	315	226	89	99
1991	95,081	31,197	8,778	17,256	1,383	1,011	1,514	722	533	63,197	63,030	86	82	239	345	251	94	103
1992	99,793	31,497	9,098	17,181	1,372	1,054	1,435	758	599	67,567	67,388	91	88	246	378	279	100	105
1993	99,676	30,026	9,071	16,083	1,038	1,126	1,346	787	574	68,866	68,674	97	95	259	416	309	107	109
1994	103,023	30,293	8,823	16,209	1,196	1,211	1,466	815	573	71,886	71,681	102	103	276	455	343	112	114
1995	113,053	32,410	9,262	17,824	1,208	1,177	1,592	744	603	79,738	79,518	108	111	288	495	381	113	123
1996	121,348	31,346	9,033	17,066	1,358	1,125	1,495	698	571	89,032	88,797	115	120	305	538	423	115	128
1997	128,898	32,430	9,077	18,121	1,292	1,207	1,462	687	585	95,342	95,063	125	155	333	660	536	123	132
1998	139,875	32,840	9,214	18,227	1,280	1,274	1,577	760	507	105,813	105,507	137	168	361	723	588	135	139
1999	147,886	30,694	9,517	15,512	1,450	1,290	1,663	819	445	115,883	115,548	148	187	385	779	636	143	144
2000	161,679	31,857	9,792	16,205	1,586	1,360	1,592	860	463	128,417	128,050	160	208	413	839	686	153	152

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, development expenditures of industry FFRDCs were not separated out from total Federal support to the industrial sector for development. Thus, the figure for Federal support to industry for development includes support for development at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

^eBecause of limitations in the survey information, data on nonfederal government funding to other performers are not available, and are inconsequently included in other sectors's support for their own R&D performance. For example, nonfederal government support to nonprofits is included in nonprofits' support for their own R&D.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-18.

U.S. inflation-adjusted development expenditures, by source of funds and performer: 1953–2000

(Millions of constant 1996 dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions				Non-Fed. Govt.
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	FFRDCs ^a	U&Cs	U&C FFRDCs ^c	Nonprofit	FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1953	17,722	9,153	2,943	5,834	NA	44	247	86	NA	8,504	8,468	5	31	14	36	31	5	15
1954	19,208	10,424	2,762	7,227	NA	44	301	90	NA	8,709	8,668	5	36	16	41	36	5	18
1955	21,178	12,267	2,743	9,024	NA	58	349	94	NA	8,835	8,787	8	40	16	40	35	5	19
1956	28,628	17,413	3,083	13,775	NA	66	394	95	NA	11,134	11,086	10	39	18	42	34	7	22
1957	31,619	21,188	3,443	17,113	NA	57	478	97	NA	10,338	10,289	12	38	20	47	38	9	25
1958	33,334	22,830	3,889	18,216	NA	58	555	113	NA	10,407	10,356	14	37	20	51	42	9	26
1959	38,679	26,835	4,296	21,709	NA	71	612	146	NA	11,741	11,686	14	41	21	55	46	9	27
1960	42,181	28,795	4,518	23,294	NA	86	678	219	NA	13,283	13,227	11	45	21	54	45	9	28
1961	44,249	29,860	4,855	23,828	NA	96	755	325	NA	14,265	14,211	9	45	23	71	62	9	31
1962	44,483	30,004	5,396	23,223	NA	99	836	451	NA	14,332	14,274	9	48	25	88	79	9	34
1963	50,172	34,589	6,370	26,591	NA	96	950	583	NA	15,426	15,370	9	48	26	96	87	9	34
1964	53,582	36,889	7,198	26,375	1,538	126	970	681	NA	16,542	16,487	9	47	28	88	77	11	34
1965	55,572	36,760	7,521	26,148	1,253	202	868	767	NA	18,642	18,583	8	50	33	101	84	17	36
1966	59,238	38,698	7,711	28,001	1,108	249	818	812	NA	20,348	20,282	8	57	39	114	94	20	38
1967	60,815	37,767	7,707	26,954	1,198	260	825	823	NA	22,854	22,785	10	60	40	121	95	26	34
1968	61,420	37,093	7,240	26,783	1,114	272	859	825	NA	24,129	24,053	15	61	35	133	99	34	29
1969	61,800	35,693	7,306	25,169	1,203	288	892	835	NA	25,915	25,832	18	65	29	138	101	36	26
1970	58,241	32,286	7,770	21,445	1,170	287	857	757	NA	25,771	25,692	17	62	24	138	103	34	22
1971	57,007	31,326	8,101	20,206	1,281	226	875	636	NA	25,491	25,416	13	62	28	136	108	28	26
1972	58,904	31,869	8,294	20,531	1,263	196	915	669	NA	26,815	26,744	11	60	43	138	110	28	39
1973	60,109	30,687	7,908	19,705	1,188	210	879	796	NA	29,161	29,086	15	60	59	150	113	37	52
1974	58,723	28,690	7,552	17,895	1,308	203	877	856	NA	29,755	29,678	18	59	67	156	115	41	55
1975	56,722	27,462	7,219	16,945	1,336	206	931	824	NA	28,979	28,901	20	58	69	157	117	40	55
1976	59,303	28,452	7,025	17,783	1,546	235	1,057	806	NA	30,560	30,473	27	60	74	161	123	38	57
1977	61,476	29,237	7,081	18,381	1,499	340	1,138	797	NA	31,919	31,826	32	61	89	170	128	41	62
1978	64,414	29,844	7,622	18,155	1,561	526	1,145	835	NA	34,220	34,128	30	61	102	182	133	49	66
1979	67,895	30,802	7,548	18,924	1,550	644	1,212	923	NA	36,732	36,641	30	61	107	189	137	53	65
1980	71,359	30,755	7,140	19,209	1,546	634	1,305	920	NA	40,226	40,131	34	61	119	193	139	54	67
1981	73,801	32,013	7,264	20,508	1,523	619	1,219	880	NA	41,393	41,295	38	60	128	197	141	56	70
1982	78,035	33,421	7,816	21,457	1,493	600	1,152	904	NA	44,205	44,104	40	61	133	206	147	59	69
1983	83,581	35,799	8,864	22,535	1,530	580	1,252	1,038	NA	47,353	47,244	45	63	141	219	158	62	69
1984	92,838	39,448	9,908	24,692	1,478	609	1,467	1,295	NA	52,933	52,815	52	66	151	234	169	65	72
1985	101,084	43,794	10,871	27,491	1,495	660	1,785	1,493	NA	56,801	56,673	59	69	163	248	182	67	78
1986	100,650	45,063	10,988	28,571	1,520	682	2,057	1,245	NA	55,052	54,912	67	73	181	267	197	70	87
1987	102,905	47,172	10,538	31,093	1,585	772	2,190	994	NA	55,148	54,997	74	77	200	291	213	78	94
1988	105,438	46,491	11,051	29,571	1,763	870	2,203	508	524	58,303	58,140	83	80	224	317	228	89	103
1989	105,352	42,421	11,235	25,278	1,709	928	2,145	609	517	62,234	62,058	91	84	246	342	244	98	110

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-18.

U.S. inflation-adjusted development expenditures, by source of funds and performer: 1953–2000
 (Millions of constant 1996 dollars)

Funding sector:	Total U.S.	Federal Government						Industry				U&Cs		Nonprofit institutions			Non-Fed. Govt.	
Performing sector:	Total U.S.	Total	Federal Gov't	Industry	Industry FFRDCs ^a	U&Cs	U&C FFRDCs ^c	Nonprofit	Nonprofit FFRDCs ^a	Total	Industry ^b	U&Cs	Nonprofit	U&Cs	Total	Nonprofit	U&Cs	U&Cs ^e
Calendar year^d																		
1990	108,667	39,070	11,213	21,923	1,662	1,051	1,938	716	567	68,857	68,674	96	87	262	364	261	103	115
1991	106,046	34,794	9,790	19,246	1,542	1,127	1,689	805	594	70,486	70,299	96	91	267	385	280	105	115
1992	108,659	34,295	9,906	18,708	1,494	1,147	1,562	825	653	73,570	73,375	99	96	268	412	303	109	114
1993	105,982	31,925	9,645	17,100	1,104	1,197	1,431	836	611	73,223	73,019	103	101	276	443	329	114	116
1994	107,304	31,552	9,190	16,883	1,246	1,262	1,526	849	596	74,873	74,660	106	107	287	474	358	116	118
1995	115,242	33,038	9,441	18,169	1,231	1,200	1,623	758	615	81,282	81,058	110	113	293	504	389	115	125
1996	121,348	31,346	9,033	17,066	1,358	1,125	1,495	698	571	89,032	88,797	115	120	305	538	423	115	128
1997	126,432	31,810	8,903	17,774	1,267	1,184	1,434	673	573	93,519	93,245	122	152	327	647	526	121	130
1998	135,512	31,815	8,927	17,658	1,240	1,234	1,528	736	491	102,512	102,216	133	163	350	700	570	131	134
1999	141,153	29,297	9,083	14,806	1,384	1,231	1,587	781	424	110,607	110,287	141	178	368	744	607	137	138
2000	151,229	29,798	9,159	15,157	1,484	1,272	1,489	805	433	120,117	119,773	150	194	387	784	642	143	142

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available

^aFor 1953–63, development expenditures of industry FFRDCs were not separated out from total Federal support to the industrial sector for development. Thus, the figure for Federal support to industry for development includes support for development at industry FFRDCs for those years. The same is true for expenditures of nonprofit FFRDCs in 1953–87, which are included in Federal support for nonprofit institutions for those years.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes all R&D expenditures of FFRDCs administered by academic institutions.

^dExpenditure levels for academic and Federal Government performers are also in reference to calendar years. These levels are approximations based on fiscal year data. For Federal Government expenditures starting in 1977, the calendar year approximation is equal to 75 percent of the amount reported in the same fiscal year plus 25 percent of the amount reported in the subsequent fiscal year. For academic expenditures in all years and for Federal Government expenditures before 1977, the respective percentages are 50 and 50, because those fiscal years (for most academic institutions and the Federal Government before 1977) begin on July 1 instead of October 1.

^eBecause of limitations in the survey information, data on nonfederal government funding to other performers are not available, and are inconsequently included in other sectors's support for their own R&D performance. For example, nonfederal government support to nonprofits is included in nonprofits' support for their own R&D.

NOTES: Data are based on annual reports by performers except for the nonprofit sector. Data are preliminary for 2000. These tables incorporate the latest revisions to prior-year data, including recently revised estimates of R&D performance by nonprofit organizations. Do not use data published earlier.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-19.

Trends in Federal and non-Federal R&D expenditure shares: 1953–2000
 (Percentages)

Year	Non-Federal total	Federal		
		Total	Defense related	Space related
1953	46.1	53.9	48.0	1.0
1954	44.8	55.2	49.0	1.0
1955	42.6	57.4	48.7	1.0
1956	41.4	58.6	49.7	1.0
1957	37.1	62.9	53.2	0.9
1958	36.1	63.9	53.1	1.1
1959	34.6	65.4	54.3	2.6
1960	35.0	65.0	52.6	3.2
1961	34.9	65.1	50.4	5.6
1962	35.2	64.8	49.1	6.6
1963	33.5	66.5	41.9	13.6
1964	33.2	66.8	37.0	19.0
1965	34.9	65.1	33.2	20.9
1966	35.8	64.2	32.4	19.6
1967	37.6	62.4	35.3	14.4
1968	39.3	60.7	34.7	13.6
1969	41.4	58.6	34.7	11.5
1970	43.0	57.0	33.4	10.3
1971	43.6	56.4	32.7	9.6
1972	44.2	55.8	33.0	7.9
1973	46.4	53.6	32.0	6.7
1974	48.2	51.8	29.3	6.9
1975	48.0	52.0	27.6	7.5
1976	48.5	51.5	26.9	7.7
1977	49.0	51.0	27.2	6.6
1978	49.8	50.2	25.9	6.2
1979	50.8	49.2	24.8	5.6
1980	52.5	47.5	24.3	5.3
1981	53.3	46.7	24.4	5.2
1982	53.9	46.1	26.1	4.9
1983	53.8	46.2	27.7	4.2
1984	54.5	45.5	28.7	3.0
1985	54.0	46.0	29.9	3.2
1986	54.5	45.5	31.5	3.0
1987	53.6	46.4	31.8	3.2
1988	55.1	44.9	30.5	3.4
1989	57.4	42.6	27.9	3.7
1990	59.4	40.6	25.4	4.2
1991	62.2	37.8	22.6	4.5
1992	63.2	36.8	21.6	4.3
1993	63.5	36.5	21.6	4.4
1994	64.1	35.9	19.9	4.4
1995	65.7	34.3	18.5	4.5
1996	67.9	32.1	17.6	4.1
1997	69.5	30.5	16.9	4.1
1998	70.5	29.5	15.9	3.9
1999	72.3	27.7	14.8	3.4
2000	73.7	26.3	13.6	3.3

NOTE: Data are preliminary for 2000.

SOURCE: National Science Foundation, Division of Science Resources Studies, *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-20.

Federal basic research budget authority, by budget function: fiscal years 1995–2001

Budget function	1995	1996	1997	1998	1999	2000	2001
Millions of current dollars							
Total	13,772	14,442	14,961	15,523	17,433	18,965	20,259
Health	6,068	6,395	6,852	7,356	8,634	9,834	10,399
General science	2,622	2,662	2,753	4,121	4,464	4,648	5,272
Space research and technology	1,614	1,685	1,653	1,610	1,667	1,737	1,761
National defense	1,181	1,165	1,090	1,067	1,110	1,205	1,262
Energy	930	1,182	1,288	34	36	37	46
Agriculture	565	547	548	571	602	659	702
Natural resources and environment	187	147	153	145	142	155	162
Transportation	389	456	420	411	358	255	202
Education, training, employment, and social services	153	140	142	133	99	106	112
Commerce and housing credit	35	37	34	35	41	41	53
Veterans benefits and services	16	13	14	23	263	268	268
Administration of justice	9	12	13	16	18	21	19
Community and regional development	3	0	0	0	0	0	0
General government	0	0	0	0	0	0	0
International affairs	0	2	2	1	0	0	0
Income security	0	0	0	0	0	0	0
Millions of constant FY 1996 dollars							
Total	14,037	14,442	14,711	15,071	16,708	17,908	18,755
Health	6,185	6,395	6,738	7,142	8,275	9,286	9,627
General science	2,673	2,662	2,707	4,000	4,278	4,389	4,880
Space research and technology	1,646	1,685	1,625	1,563	1,597	1,641	1,631
National defense	1,204	1,165	1,072	1,036	1,063	1,138	1,168
Energy	948	1,182	1,266	33	34	35	43
Agriculture	576	547	539	554	577	622	650
Natural resources and environment	190	147	150	141	136	146	150
Transportation	397	456	413	399	343	241	187
Education, training, employment, and social services	156	140	140	129	95	100	104
Commerce and housing credit	36	37	33	34	39	38	49
Veterans benefits and services	16	13	14	23	252	253	248
Administration of justice	9	12	13	16	17	20	18
Community and regional development	3	0	0	0	0	0	0
General government	0	0	0	0	0	0	0
International affairs	0	2	2	1	0	0	0
Income security	0	0	0	0	0	0	0

FY = fiscal year

NOTES: Data for 1995–99 are actual budget authority. Data for 2000 are preliminary estimates, and data for 2001 are proposed based on FY 2001 budget. See Appendix table 4-1 for fiscal year gross domestic product implicit price deflators used to convert current dollars to constant 1996 dollars. Beginning in FY 1998, a number of Department of Energy programs were reclassified from energy to general science. Beginning FY 1999, the increase in the Veterans Administration basic research totals was a result of data reclassifications.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal R&D Funding by Budget Function: Fiscal Years 1999–2001*, NSF 01-316 (Arlington, VA, 2001).

Appendix table 4-21.

R&D expenditures by state, performing sector, and source of funds: 1999
 (Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't		Industry				Universities & colleges				U&C FFRDCs	Other nonprofit institutions	Nonprofit FFRDCs	
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit				
Funding sector:	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d	
State	Rank														
U.S. Total	NA	244,143,000	18,332,000	182,823,000	22,535,000	160,288,000	28,363,000	16,518,000	2,083,000	2,133,000	5,562,000	2,066,000	5,698,000	3,718,000	909,000
Alabama	27	1,761,474	771,923	556,000	190,000	365,000	416,594	261,752	8,923	22,287	79,251	44,381	0	16,957	0
Alaska	49	151,979	53,287	D	D	3,000	93,687	37,241	4,109	19,720	32,299	318	0	2,005	0
Arizona	14	5,090,944	170,099	4,434,000	224,000	4,210,000	439,286	239,142	11,753	22,242	150,366	15,783	37,308	10,251	0
Arkansas	44	378,033	46,122	216,000	3,000	213,000	111,999	45,587	32,543	10,286	16,437	7,146	0	3,912	0
California	1	47,965,435	1,749,647	39,047,000	4,042,000	35,006,000	3,658,622	2,179,077	185,716	249,043	729,128	315,658	2,800,035	577,895	132,236
Colorado	17	4,209,085	238,003	3,136,000	D	D	507,673	361,598	24,992	27,226	60,743	33,114	132,587	61,389	133,433
Connecticut	15	4,436,224	17,883	3,984,000	207,000	3,777,000	418,122	273,787	10,827	26,026	66,997	40,485	0	16,219	0
Delaware	31	1,342,913	2,747	1,261,000	9,000	1,252,000	76,286	36,683	5,401	4,246	19,715	10,241	0	2,880	0
District of Columbia	23	2,509,737	1,912,131	171,000	52,000	119,000	223,786	173,466	3,117	14,349	13,110	19,744	0	202,661	159
Florida	16	4,265,345	763,344	2,697,000	706,000	1,991,000	788,743	396,395	91,371	63,637	198,479	38,861	0	16,258	0
Georgia	20	2,959,809	278,552	1,827,000	178,000	1,649,000	839,715	380,202	74,085	90,747	258,402	36,279	0	14,542	0
Hawaii	45	270,239	64,534	27,000	1,000	26,000	156,810	93,418	35,111	13,021	15,260	0	0	21,895	0
Idaho	32	1,309,401	27,448	1,210,000	D	D	71,674	28,116	15,718	3,962	16,877	7,001	0	279	0
Illinois	8	9,719,210	77,055	7,715,000	41,000	7,674,000	1,101,056	626,648	62,687	56,748	272,193	82,780	758,090	68,009	0
Indiana	21	2,763,351	54,903	2,246,000	D	D	460,418	224,035	27,877	41,727	149,209	17,570	0	2,030	0
Iowa	34	1,002,839	39,213	559,000	6,000	553,000	375,300	177,847	53,415	35,940	91,684	16,414	25,438	3,888	0
Kansas	29	1,555,578	35,743	1,284,000	D	D	234,501	88,728	50,445	19,525	58,212	17,591	0	1,334	0
Kentucky	36	967,676	9,146	684,000	1,000	683,000	273,903	92,572	42,066	21,714	108,568	8,983	0	627	0
Louisiana	38	626,132	58,976	187,000	53,000	134,000	376,098	154,341	79,834	32,879	89,100	19,944	0	4,058	0
Maine	46	224,584	4,975	140,000	52,000	88,000	44,437	20,137	1,964	2,476	17,293	2,567	0	35,172	0
Maryland	10	8,087,315	4,814,517	1,700,000	455,000	1,246,000	1,387,262	1,058,128	76,138	33,777	151,053	68,166	0	184,657	879
Massachusetts	5	12,189,891	240,059	9,314,000	2,374,000	6,940,000	1,402,522	1,018,574	32,905	125,874	88,441	136,728	353,321	804,838	75,151
Michigan	2	18,798,557	149,473	17,714,000	134,000	17,580,000	919,390	508,080	58,472	60,451	229,644	62,743	0	15,694	0
Minnesota	18	3,904,779	37,878	3,379,000	242,000	3,137,000	375,919	210,235	49,447	24,323	62,310	29,604	0	111,982	0
Mississippi	39	476,292	196,245	114,000	43,000	71,000	160,287	85,128	31,138	9,570	33,732	719	0	5,760	0
Missouri	25	2,009,472	48,097	1,387,000	21,000	1,367,000	549,876	321,115	25,591	30,380	127,617	45,173	0	24,499	0
Montana	47	168,611	42,816	33,000	D	D	84,460	43,872	14,639	8,967	15,566	1,416	0	8,335	0
Nebraska	42	417,342	28,769	178,000	6,000	172,000	205,363	61,226	10,648	17,231	102,726	13,532	0	5,210	0
Nevada	40	457,765	27,843	337,000	D	D	91,485	51,387	5,442	5,196	25,484	3,976	0	1,437	0
New Hampshire	33	1,256,206	28,353	1,099,000	D	D	127,135	77,327	8,961	8,939	18,102	13,806	0	1,718	0
New Jersey	7	10,535,662	486,722	9,453,000	126,000	9,327,000	520,957	239,880	45,013	30,402	162,468	43,194	53,693	15,666	5,624
New Mexico	19	3,278,714	409,886	1,342,000	D	D	224,500	155,218	12,302	12,866	39,260	4,854	1,278,901	23,427	0
New York	3	14,110,375	132,848	11,388,000	2,105,000	9,284,000	2,065,882	1,334,210	84,437	101,656	322,852	222,727	0	274,887	248,758
North Carolina	12	5,268,108	230,780	3,953,000	19,000	3,934,000	1,012,576	538,102	121,787	179,830	145,060	27,797	0	71,752	0
North Dakota	48	168,176	30,561	75,000	0	75,000	61,695	25,923	1,965	3,608	27,782	2,417	0	920	0
Ohio	11	8,082,147	604,957	6,514,000	1,148,000	5,366,000	830,701	475,054	68,051	80,705	149,023	57,868	0	132,489	0
Oklahoma	37	664,408	45,912	365,000	2,000	363,000	238,799	88,507	41,736	14,802	76,192	17,562	0	14,697	0
Oregon	26	1,974,067	89,369	1,540,000	3,000	1,537,000	319,700	210,667	33,975	10,473	48,269	16,316	0	24,998	0
Pennsylvania	6	10,695,077	168,382	8,932,000	441,000	8,491,000	1,400,286	905,775	52,510	154,203	202,126	85,672	31,821	162,588	0
Rhode Island	28	1,651,139	232,701	1,264,000	D	D	120,868	81,512	4,485	2,901	28,474	3,496	0	33,570	0
South Carolina	35	979,065	45,050	665,000	D	D	267,549	111,092	26,670	12,826	101,890	15,071	0	1,461	5

See notes, if any, and SOURCE at end of table.

Appendix table 4-21.

R&D expenditures by state, performing sector, and source of funds: 1999
 (Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't		Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions		Nonprofit FFRDCs	
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit		Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d	
Funding sector:	Total R&D	Federal Gov't														
State	Rank															
South Dakota	51	59,601	20,709	13,000	0	13,000	25,522	12,759	7,798	306	2,397	2,262	0	370	0	
Texas	4	12,429,172	584,149	9,935,000	118,000	9,817,000	1,829,967	975,753	183,149	160,032	301,326	209,707	0	77,689	2,367	
Utah	30	1,474,191	74,129	1,123,000	D	D	273,192	177,563	19,852	15,730	46,220	13,827	0	3,870	0	
Vermont	43	388,598	4,065	318,000	D	D	64,791	36,773	2,718	7,112	11,896	6,292	0	1,742	0	
Virginia	13	5,100,161	1,793,639	2,488,000	1,096,000	1,391,000	531,286	303,018	55,121	49,589	90,982	32,576	74,604	54,641	157,991	
Washington	9	8,336,432	191,104	7,231,000	D	D	588,075	417,330	16,340	54,656	78,902	20,847	0	175,105	151,148	
West Virginia	41	438,558	116,330	216,000	D	D	64,340	26,589	3,204	5,532	24,752	4,263	37,162	4,726	0	
Wisconsin	22	2,565,541	41,110	1,949,000	72,000	1,877,000	560,648	313,140	44,989	19,771	116,601	66,147	0	14,783	0	
Wyoming	50	65,923	15,508	D	0	D	47,197	19,109	2,730	3,206	20,648	1,504	0	3,218	0	
Other and unknown ...	NA	12,311,000	960,000	5,655,000	8,365,000	20,557,000	971,000	526,000	80,000	89,000	207,000	67,000	63,000	365,000	1,000	

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; D = data withheld to avoid disclosing operations of individual companies; NA = not applicable

^aIncludes performance at industry FFRDCs.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes total R&D expenditures of FFRDCs administered by academic institutions.

^dOther sources of support for nonprofit institutions were unavailable by state. For 1999, total nonprofit performance is estimated at \$8,017 million. Industry provided an estimated \$976 million to the nonprofit sector, and nonprofit institutions provided an estimated \$3,323 million. These non-Federal support amounts are included in the total R&D column for the rows "U.S. total" and "other and unknown." This is why, for these two columns, the "total R&D" amounts are greater than the sum of the components to the right, because those components do not include non-Federal support to nonprofit organizations.

NOTES: Industry R&D data by state are in reference to calendar years; other R&D data by state are in reference to fiscal years but may serve as approximations to calendar year data. The "other and unknown" category is the difference between the national aggregates and the sum of the individual state data that are reported here. Therefore, part of the "other and unknown" totals reflects the difference between state totals reported on a fiscal year basis and the U.S. totals that have been adjusted to calendar year estimates. For industry, the "other and unknown" totals include the survey data that were not assigned to individual states plus the amounts that were reported for individual states but are suppressed here to protect confidentiality of surveyed companies. To protect confidentiality, total R&D for Alaska excludes Federal support to industry, and total R&D for Wyoming excludes industry support to industry. Therefore, total R&D amounts are lower-bound estimates for these two states.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), unpublished tabulations.

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Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987–98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't		Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions		Nonprofit FFRDCs	
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit		Federal Gov't ^c	Federal Gov't ^d		
Funding sector:	Total R&D															
Alabama																
1987	2,349,977	584,230	1,592,000	900,000	692,000	152,925	85,382	16,449	10,916	29,919	10,259	0	20,822	0		
1989	1,232,429	568,243	428,000	213,000	215,000	215,836	119,693	18,339	16,242	45,106	16,456	0	20,350	0		
1991	1,510,827	700,617	521,000	221,000	300,000	252,998	132,063	27,267	20,348	52,667	20,653	0	36,212	0		
1993	1,967,533	833,137	833,000	406,000	427,000	281,209	161,331	26,991	23,729	48,358	20,800	0	20,187	0		
1995	1,680,828	642,257	686,000	273,000	413,000	334,689	190,330	6,991	29,164	86,664	21,540	0	17,882	0		
1997	1,636,645	660,047	589,000	189,000	399,000	368,602	230,894	5,251	29,685	84,747	18,025	0	18,996	0		
1998	1,926,127	752,619	707,000	180,000	527,000	442,196	282,113	7,238	30,279	82,308	40,258	0	24,312	0		
Alaska																
1987	90,429	32,840	10,000	D	D	47,432	21,523	2,999	3,024	17,960	1,926	0	157	0		
1989	117,914	51,178	9,000	D	D	56,701	26,659	2,101	3,039	21,869	3,033	0	1,035	0		
1991	146,091	58,705	18,000	D	D	67,432	34,335	1,926	1,547	28,246	1,378	0	1,954	0		
1993	129,211	47,833	14,000	D	D	66,796	41,616	3,012	4,751	17,412	5	0	582	0		
1995	163,396	60,545	30,000	D	D	72,216	37,285	5,607	5,470	23,850	4	0	635	0		
1997	135,745	38,381	24,000	D	D	70,943	28,127	3,964	12,769	26,082	1	0	2,421	0		
1998	NA	44,010	D	D	9,000	75,854	31,632	3,691	16,116	24,382	33	0	3,707	0		
Arizona																
1987	1,144,281	83,236	845,000	178,000	667,000	181,263	80,955	8,965	17,456	61,644	12,243	26,000	8,782	0		
1989	1,293,340	118,284	917,000	220,000	697,000	223,834	105,367	7,949	12,500	86,076	11,942	27,600	6,622	0		
1991	1,398,709	132,341	944,000	199,000	745,000	284,128	131,627	7,945	19,519	109,028	16,009	27,400	10,840	0		
1993	1,607,378	206,067	1,042,000	298,000	744,000	310,721	149,803	6,333	18,889	112,596	23,100	40,000	8,590	0		
1995	1,957,119	169,700	1,356,000	620,000	736,000	380,216	210,475	8,080	23,238	126,380	12,043	45,005	6,198	0		
1997	2,409,843	143,601	1,854,000	677,000	1,177,000	376,818	198,097	10,266	18,584	137,165	12,706	29,058	6,366	0		
1998	2,317,552	138,493	1,727,000	490,000	1,237,000	405,999	210,170	11,812	22,125	146,586	15,306	38,283	7,777	0		
Arkansas																
1987	195,660	24,196	135,000	D	D	35,529	12,257	9,352	2,829	8,028	3,063	0	935	0		
1989	120,875	25,071	51,000	D	D	43,676	14,213	12,186	4,123	9,521	3,633	0	1,128	0		
1991	198,271	35,180	106,000	D	D	55,081	20,178	13,958	4,514	12,945	3,486	0	2,010	0		
1993	301,143	40,657	185,000	D	D	74,011	25,362	23,666	6,767	14,774	3,442	0	1,475	0		
1995	329,500	57,563	181,000	D	D	87,799	33,348	23,779	7,693	19,717	3,262	0	3,138	0		
1997	271,703	49,469	118,000	D	D	102,204	35,021	29,227	7,570	23,985	6,401	0	2,030	0		
1998	283,161	45,895	118,000	D	D	116,778	41,204	33,154	8,246	26,994	7,180	0	2,488	0		
California																
1987	25,520,939	2,011,033	19,475,000	10,963,000	8,512,000	1,554,787	1,066,099	36,570	72,260	289,604	90,254	2,097,000	383,119	na		
1989	30,885,676	2,478,100	23,675,000	12,857,000	10,818,000	1,850,062	1,285,165	43,546	83,218	321,615	116,518	2,385,300	252,148	245,066		
1991	28,346,287	1,885,275	21,279,000	8,911,000	12,368,000	2,146,235	1,436,542	84,176	86,265	389,156	150,096	2,562,800	326,127	146,850		
1993	33,721,294	1,785,138	26,541,000	7,463,000	19,078,000	2,380,144	1,629,545	112,454	99,291	367,857	170,997	2,499,000	338,161	177,851		
1995	36,035,609	1,843,729	28,710,000	6,925,000	21,785,000	2,594,280	1,796,691	107,055	120,080	372,941	197,513	2,377,815	361,960	147,825		
1997	41,669,723	1,454,133	34,011,000	5,977,000	28,034,000	2,978,575	2,028,296	128,617	160,304	439,942	221,416	2,549,108	473,915	202,992		
1998	43,919,295	1,595,270	35,568,000	3,803,000	31,764,000	3,344,740	2,008,924	146,021	213,137	702,175	274,483	2,770,950	519,452	120,883		

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987–98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't			Industry			Universities & colleges				U&C FFRDCs	Other nonprofit institutions		
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit		Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d
Funding sector:	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d	
Colorado															
1987	1,704,333	132,807	1,261,000	282,000	979,000	185,699	136,003	8,771	8,728	17,682	14,515	52,000	72,827	na	
1989	1,648,885	116,787	1,162,000	251,000	911,000	226,555	167,043	10,679	14,381	17,735	16,717	63,300	29,354	50,889	
1991	NA	275,312	D	D	1,751,000	260,587	187,819	12,905	16,481	23,078	20,304	78,300	33,718	72,558	
1993	2,864,058	169,821	2,111,000	252,000	1,859,000	331,081	222,107	18,026	23,651	41,797	25,500	99,000	41,852	111,304	
1995	2,700,684	167,869	1,865,000	274,000	1,591,000	393,809	260,247	21,998	24,470	51,690	35,404	125,310	46,418	102,278	
1997	3,205,211	195,364	2,248,000	525,000	1,723,000	427,435	289,514	26,833	23,756	50,422	36,910	135,980	50,078	148,354	
1998	4,565,357	202,224	3,565,000	1,237,000	2,329,000	489,419	332,402	26,136	26,818	68,164	35,899	130,865	54,822	123,027	
Connecticut															
1987	2,471,219	17,719	2,216,000	632,000	1,584,000	230,790	155,717	2,495	9,298	39,761	23,519	0	6,710	0	
1989	2,744,751	37,810	2,410,000	680,000	1,730,000	284,410	187,212	5,430	11,630	56,999	23,139	0	12,531	0	
1991	1,917,105	46,602	1,535,000	504,000	1,031,000	320,935	197,120	5,996	16,121	73,778	27,920	0	14,568	0	
1993	2,808,827	52,905	2,373,000	419,000	1,954,000	364,708	220,562	10,067	18,351	80,829	34,899	0	18,214	0	
1995	4,310,652	17,690	3,906,000	389,000	3,517,000	377,225	227,915	18,732	20,327	78,243	32,008	0	9,737	0	
1997	3,454,151	32,731	3,014,000	307,000	2,707,000	392,668	242,385	13,730	25,387	76,391	34,775	0	14,752	0	
1998	3,558,775	18,257	3,113,000	179,000	2,935,000	403,961	262,488	13,289	25,926	67,005	35,253	0	23,557	0	
Delaware															
1987	NA	2,874	D	D	D	31,681	13,662	1,995	3,659	10,117	2,248	0	2,647	0	
1989	NA	3,133	D	D	D	37,194	17,083	2,603	4,073	11,125	2,310	0	2,110	0	
1991	NA	8,605	D	D	D	44,696	20,053	4,024	4,732	12,724	3,163	0	2,883	0	
1993	1,248,672	12,053	1,181,000	24,000	1,157,000	52,627	26,170	3,710	4,857	13,937	3,953	0	2,992	0	
1995	1,148,632	15,477	1,077,000	12,000	1,065,000	53,161	27,352	2,144	3,681	14,560	5,424	0	2,994	0	
1997	1,088,697	10,207	1,009,000	8,000	1,001,000	65,095	32,031	2,977	3,361	20,125	6,601	0	4,395	0	
1998	2,555,543	3,722	2,476,000	13,000	2,463,000	72,779	36,422	4,701	3,867	19,244	8,545	0	3,042	0	
District of Columbia															
1987	NA	1,208,569	D	D	D	85,470	62,968	484	4,192	11,642	6,184	0	100,959	0	
1989	NA	1,521,715	D	D	D	23,000	111,325	84,274	480	7,924	13,022	5,625	0	136,744	0
1991	1,736,670	1,432,998	40,000	16,000	24,000	118,398	86,793	463	7,279	12,718	11,145	0	145,274	0	
1993	2,543,172	1,712,811	540,000	21,000	519,000	145,218	100,345	1,038	10,313	18,346	15,176	0	144,543	600	
1995	3,128,187	2,106,208	672,000	17,000	656,000	181,461	132,770	814	13,297	19,937	14,643	0	168,518	0	
1997	2,767,902	1,732,539	645,000	D	D	214,019	153,846	1,267	18,381	24,092	16,433	0	175,954	390	
1998	2,606,128	1,717,704	503,000	90,000	413,000	232,922	165,715	2,042	19,481	26,442	19,242	0	150,383	2,119	
Florida															
1987	3,136,347	719,058	2,133,000	892,000	1,241,000	278,847	129,474	13,889	20,334	98,188	16,962	0	5,442	0	
1989	3,374,947	642,074	2,341,000	1,167,000	1,174,000	385,556	200,742	25,655	20,660	112,906	25,593	0	6,317	0	
1991	3,699,966	657,605	2,599,000	934,000	1,665,000	438,054	220,683	36,736	35,690	116,339	28,606	0	5,307	0	
1993	3,525,284	607,692	2,425,000	970,000	1,455,000	488,551	267,717	31,641	40,565	119,937	28,691	0	4,041	0	
1995	5,222,709	554,440	4,101,000	1,634,000	2,467,000	559,104	317,081	41,466	36,382	135,110	29,065	0	8,165	0	
1997	4,783,893	649,376	3,442,000	1,461,000	1,981,000	681,508	333,828	89,003	48,304	176,142	34,231	0	11,009	0	
1998	4,773,060	749,648	3,300,000	889,000	2,411,000	712,704	355,892	80,720	51,772	184,475	39,845	0	10,708	0	

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.
R&D expenditures by state, performing sector, and sources of funds: 1987–98
(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't	Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions		
	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d
Funding sector:	Total R&D	Federal Gov't												
Georgia														
1987	1,430,455	96,266	1,001,000	D	D	331,000	151,367	39,621	34,196	95,827	9,989	0	2,189	0
1989	1,309,760	157,925	719,000	D	D	424,424	210,248	40,141	35,635	126,231	12,169	0	8,411	0
1991	1,478,861	121,008	868,000	89,000	779,000	484,019	238,664	43,222	40,010	149,645	12,478	0	5,834	0
1993	1,577,360	159,002	860,000	63,000	797,000	546,960	273,079	39,325	51,968	167,509	15,079	0	11,398	0
1995	2,112,474	272,178	1,175,000	142,000	1,031,000	657,530	302,390	53,611	55,018	221,785	24,726	0	7,766	0
1997	2,271,517	225,150	1,273,000	212,000	1,062,000	766,346	347,407	68,844	73,284	252,398	24,413	0	7,021	0
1998	2,491,906	235,596	1,444,000	86,000	1,358,000	802,023	369,764	70,019	86,040	246,086	30,114	0	10,287	0
Hawaii														
1987	158,274	23,218	73,000	54,000	19,000	57,345	34,472	19,317	261	2,591	704	0	4,711	0
1989	123,204	36,400	9,000	2,000	7,000	70,733	40,574	24,759	799	3,686	915	0	7,071	0
1991	144,656	44,537	11,000	D	D	78,166	44,857	27,321	856	3,391	1,741	0	10,953	0
1993	380,150	41,703	255,000	D	D	73,961	41,362	27,099	151	3,109	2,240	0	9,486	0
1995	169,252	62,303	14,000	D	D	78,429	44,238	26,789	299	3,738	3,365	0	14,520	0
1997	274,632	54,318	87,000	55,000	32,000	120,107	72,421	28,440	5,944	13,297	5	0	13,207	0
1998	241,560	54,776	17,000	D	D	148,007	86,886	37,002	10,949	13,170	0	0	21,777	0
Idaho														
1987	528,396	15,342	488,000	386,000	102,000	24,779	8,988	8,314	2,899	4,436	142	0	275	0
1989	NA	18,785	D	D	161,000	33,191	12,585	8,112	4,199	8,148	147	0	531	0
1991	NA	36,666	D	D	D	41,437	15,681	8,604	5,050	11,697	405	0	777	0
1993	477,563	37,396	391,000	D	D	48,774	17,026	12,550	7,286	11,068	844	0	393	0
1995	913,961	27,792	827,000	D	D	58,621	19,710	13,615	7,408	16,350	1,538	0	548	0
1997	1,269,685	24,092	1,181,000	D	D	64,278	18,103	21,752	9,151	14,802	470	0	315	0
1998	1,126,774	25,042	1,028,000	D	D	72,395	25,444	21,760	8,059	16,334	798	0	1,337	0
Illinois														
1987	5,337,890	72,532	4,284,000	940,000	3,344,000	498,221	293,929	30,610	23,791	117,826	32,065	444,000	39,137	0
1989	5,305,752	59,321	4,050,000	D	D	602,558	338,082	33,881	38,990	150,694	40,911	528,400	65,473	0
1991	6,413,236	68,151	5,027,000	190,000	4,837,000	697,565	361,461	52,573	49,583	177,424	56,524	573,500	47,020	0
1993	6,777,207	83,136	5,242,000	236,000	5,006,000	757,508	424,745	45,716	44,745	178,026	64,276	649,000	45,563	0
1995	7,482,753	80,626	5,776,000	146,000	5,630,000	817,640	467,952	46,903	43,048	195,052	64,685	767,071	41,416	0
1997	8,033,737	77,224	6,248,000	163,000	6,085,000	929,639	529,803	53,968	50,156	220,259	75,453	724,565	54,309	0
1998	8,830,457	71,946	6,892,000	136,000	6,755,000	1,045,800	586,627	56,752	59,665	262,243	80,513	759,182	61,529	0
Indiana														
1987	2,197,318	64,245	1,944,000	353,000	1,591,000	188,086	111,413	15,772	17,203	37,627	6,071	0	987	0
1989	2,120,117	74,520	1,815,000	D	D	227,266	136,040	18,911	18,419	43,658	10,238	0	3,331	0
1991	2,346,791	92,036	1,988,000	226,000	1,762,000	262,508	143,761	20,347	19,726	61,425	17,249	0	4,247	0
1993	2,560,252	77,330	2,177,000	D	D	302,811	167,743	20,552	22,535	65,991	25,990	0	3,111	0
1995	3,162,376	62,061	2,721,000	382,000	2,339,000	375,719	197,095	22,463	34,542	101,283	20,336	0	3,596	0
1997	3,149,259	68,272	2,677,000	D	D	400,399	209,227	23,826	33,321	113,903	20,122	0	3,588	0
1998	3,088,634	38,023	2,622,000	D	D	425,293	213,547	25,517	40,336	126,410	19,483	0	3,318	0

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987-98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't		Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions		Nonprofit FFRDCs	
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit		Federal Gov't ^c	Federal Gov't ^d		
Funding sector:	Total R&D															
Iowa																
1987	540,156	20,217	343,000	D	D	157,539	76,915	16,653	6,212	49,668	8,091	19,000	400	0		
1989	616,408	20,447	363,000	D	D	209,394	103,360	24,839	14,711	60,863	5,621	21,800	1,767	0		
1991	777,130	26,977	461,000	D	D	259,437	123,858	34,147	14,372	74,471	12,589	26,400	3,316	0		
1993	902,050	30,424	533,000	D	D	298,745	145,006	38,218	17,907	80,919	16,695	37,000	2,881	0		
1995	1,391,005	37,257	998,000	D	D	322,769	163,620	47,279	19,391	77,793	14,686	31,925	1,054	0		
1997	979,747	29,043	578,000	D	D	341,772	162,060	52,713	24,226	83,880	18,893	27,680	3,252	0		
1998	1,053,690	32,701	634,000	D	D	358,259	167,123	52,945	31,066	88,665	18,460	24,637	4,093	0		
Kansas																
1987	1,282,752	9,073	1,179,000	D	D	93,931	37,386	20,031	5,433	27,607	3,474	0	748	0		
1989	522,687	9,034	404,000	94,000	310,000	107,856	44,292	24,159	5,187	30,204	4,014	0	1,797	0		
1991	NA	11,961	D	D	D	124,174	43,913	28,967	7,292	39,897	4,105	0	5,219	0		
1993	463,570	12,198	292,000	47,000	245,000	154,103	59,635	36,640	7,527	44,215	6,086	0	5,269	0		
1995	763,702	12,296	569,000	D	D	181,496	70,026	39,353	11,434	52,517	8,166	0	910	0		
1997	1,350,536	15,622	1,136,000	D	D	197,586	75,116	45,002	11,907	56,752	8,809	0	1,328	0		
1998	1,518,063	24,757	1,279,000	D	D	213,096	80,443	47,089	12,385	56,215	16,964	0	1,210	0		
Kentucky																
1987	353,868	26,692	249,000	D	D	78,008	30,778	10,841	6,715	26,545	3,129	0	168	0		
1989	343,099	31,159	226,000	D	226,000	83,998	32,963	7,113	7,516	30,593	5,813	0	1,942	0		
1991	316,616	62,279	154,000	D	D	97,989	38,386	6,122	10,569	38,008	4,904	0	2,348	0		
1993	428,684	15,728	289,000	7,000	282,000	122,409	55,698	6,198	13,575	42,013	4,925	0	1,547	0		
1995	593,797	5,911	452,000	4,000	448,000	134,784	59,811	9,589	16,627	43,883	4,874	0	1,102	0		
1997	525,613	7,289	359,000	3,000	356,000	158,238	75,649	7,394	20,016	53,122	2,057	0	1,086	0		
1998	645,079	6,591	427,000	D	D	209,780	80,390	15,049	19,176	86,057	9,108	0	1,708	0		
Louisiana																
1987	317,932	34,619	134,000	D	D	148,563	54,367	31,850	7,154	42,639	12,553	0	750	0		
1989	385,930	36,410	168,000	D	D	180,032	69,219	40,758	8,193	47,129	14,733	0	1,488	0		
1991	453,098	43,104	172,000	16,000	156,000	235,726	98,860	62,167	15,678	44,184	14,837	0	2,268	0		
1993	469,705	42,557	170,000	D	D	255,171	95,891	64,306	16,508	61,267	17,199	0	1,977	0		
1995	422,967	45,108	61,000	D	D	314,996	135,838	71,898	21,317	66,446	19,497	0	1,863	0		
1997	554,255	47,910	172,000	D	D	330,131	128,017	74,861	32,231	78,094	16,928	0	4,214	0		
1998	542,408	84,315	102,000	14,000	87,000	351,976	144,039	78,128	23,406	86,840	19,563	0	4,117	0		
Maine																
1987	76,367	5,493	41,000	D	41,000	16,952	7,787	315	2,051	5,740	1,059	0	12,922	0		
1989	72,733	4,394	33,000	D	33,000	19,974	8,288	584	4,002	6,567	533	0	15,365	0		
1991	NA	13,862	D	D	D	27,082	10,062	2,197	4,719	9,504	600	0	16,456	0		
1993	113,937	13,003	59,000	D	D	24,879	8,959	1,711	4,117	9,674	418	0	17,055	0		
1995	345,449	4,238	286,000	D	D	31,901	15,789	2,005	4,158	9,357	592	0	23,310	0		
1997	148,620	5,685	83,000	D	D	33,144	15,066	1,551	5,609	10,526	392	0	26,791	0		
1998	159,268	10,953	82,000	D	D	35,265	13,981	1,809	7,252	11,194	1,029	0	31,050	0		

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987–98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't		Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions		Nonprofit FFRDCs
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit		Federal Gov't ^c	Federal Gov't ^d	
Funding sector:	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d	Nonprofit FFRDCs
Maryland															
1987	4,623,170	2,507,828	1,350,000	608,000	742,000	723,915	576,698	50,425	25,803	59,733	11,256	0	41,427	na	
1989	4,972,713	2,915,588	1,088,000	552,000	536,000	900,007	705,292	61,216	35,556	74,426	23,517	0	68,533	585	
1991	5,736,048	3,332,276	1,203,000	666,000	537,000	1,050,023	787,317	79,047	39,832	113,214	30,613	0	149,107	1,642	
1993	7,530,401	4,116,718	2,076,000	1,287,000	789,000	1,128,066	842,053	90,237	47,604	115,976	32,196	0	204,180	5,437	
1995	6,865,287	4,472,415	1,075,000	287,000	788,000	1,159,866	894,585	75,759	55,111	84,508	49,903	0	156,442	1,564	
1997	7,395,409	4,569,181	1,425,000	456,000	970,000	1,242,151	927,015	81,381	40,098	114,075	79,582	0	154,995	4,082	
1998	8,018,944	4,766,005	1,744,000	655,000	1,089,000	1,330,170	1,014,239	62,950	41,752	142,710	68,519	0	178,769	0	
Massachusetts															
1987	7,773,057	575,855	5,492,000	1,468,000	4,024,000	719,581	536,999	18,390	64,806	37,790	61,596	354,000	631,621	na	
1989	7,948,303	401,091	5,825,000	1,691,000	4,134,000	867,521	621,789	18,529	78,727	58,681	89,795	364,100	419,725	70,866	
1991	8,565,279	277,787	6,335,000	1,480,000	4,855,000	953,708	680,168	13,090	90,390	71,025	99,035	389,000	433,698	176,086	
1993	9,497,975	383,885	6,952,000	1,878,000	5,074,000	1,105,791	771,864	15,462	98,270	91,877	128,318	355,000	525,805	175,494	
1995	9,969,508	315,749	7,416,000	1,458,000	5,958,000	1,147,150	824,826	13,240	89,409	92,116	127,559	344,657	587,363	158,589	
1997	11,096,958	361,118	8,300,000	1,397,000	6,903,000	1,268,356	915,187	29,248	102,848	124,784	96,289	352,591	652,158	162,735	
1998	13,382,495	301,193	10,604,000	2,419,000	8,185,000	1,342,712	987,319	31,704	107,368	98,737	117,584	364,783	706,800	63,007	
Michigan															
1987	7,919,304	87,364	7,415,000	115,000	7,300,000	396,580	207,729	30,320	25,146	103,830	29,555	0	20,360	0	
1989	9,058,245	71,349	8,468,000	99,000	8,369,000	487,192	263,506	35,983	36,310	116,135	35,258	0	31,704	0	
1991	8,850,565	91,833	8,116,000	89,000	8,027,000	601,189	309,592	42,539	43,684	152,841	52,533	0	41,543	0	
1993	10,777,535	95,717	9,924,000	153,000	9,771,000	699,957	377,278	39,541	47,390	172,114	63,634	0	57,861	0	
1995	13,274,875	82,008	12,388,000	148,000	12,240,000	755,089	417,755	48,961	50,629	180,866	56,878	0	49,778	0	
1997	13,990,795	107,749	13,009,000	121,000	12,888,000	842,303	453,776	50,749	57,149	205,580	75,049	0	31,743	0	
1998	13,655,250	111,457	12,648,000	D	D	877,804	472,416	56,146	59,400	221,186	68,656	0	17,989	0	
Minnesota															
1987	2,529,453	26,388	2,242,000	D	D	222,381	109,003	37,287	11,056	39,371	25,664	0	38,684	0	
1989	2,398,568	31,036	2,066,000	D	D	258,614	132,880	42,542	12,389	43,713	27,090	0	42,918	0	
1991	2,227,672	40,468	1,810,000	150,000	1,660,000	331,471	164,887	53,614	19,270	60,904	32,796	0	45,733	0	
1993	2,922,121	40,129	2,458,000	378,000	2,080,000	332,033	174,716	49,861	21,524	64,840	21,092	0	91,959	0	
1995	3,087,438	30,139	2,636,000	315,000	2,321,000	336,524	194,819	49,543	23,427	46,235	22,500	0	84,775	0	
1997	3,605,451	34,573	3,116,000	362,000	2,754,000	363,095	200,149	50,539	24,196	53,731	34,480	0	91,783	0	
1998	3,817,731	38,437	3,321,000	334,000	2,986,000	364,503	206,258	47,696	25,173	55,925	29,451	0	93,791	0	
Mississippi															
1987	236,427	127,489	44,000	D	D	59,882	24,532	16,775	4,282	8,897	5,396	0	5,056	0	
1989	268,090	130,448	56,000	D	D	78,922	35,747	20,493	5,439	9,670	7,573	0	2,720	0	
1991	302,380	157,156	41,000	D	D	100,383	52,853	20,886	8,892	12,132	5,620	0	3,841	0	
1993	324,189	162,622	52,000	D	D	105,739	54,715	21,836	9,824	10,960	8,404	0	3,828	0	
1995	314,710	132,616	66,000	D	D	112,789	62,597	23,778	8,912	11,211	6,291	0	3,305	0	
1997	369,557	165,297	73,000	D	D	124,601	62,350	29,324	9,169	13,623	10,135	0	6,659	0	
1998	366,465	132,896	73,000	17,000	57,000	152,683	79,772	29,455	10,399	31,126	1,931	0	7,886	0	

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987–98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't		Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions		Nonprofit FFRDCs	
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit		Federal Gov't ^c	Federal Gov't ^d		
Funding sector:	Total R&D															
Missouri																
1987	2,171,482	46,007	1,905,000	D	D	205,597	113,146	11,753	19,325	49,579	11,794	0	14,878	0		
1989	2,709,978	58,176	2,380,000	D	D	255,009	139,677	14,509	25,151	59,615	16,057	0	16,793	0		
1991	NA	71,220	D	D	D	305,780	165,099	19,061	30,195	67,335	24,090	0	22,217	0		
1993	1,788,896	51,288	1,375,000	D	D	344,566	190,959	18,959	31,492	78,490	24,666	0	18,042	0		
1995	2,498,360	55,445	2,028,000	584,000	1,443,000	397,192	212,750	21,486	36,639	92,974	33,343	0	17,723	0		
1997	1,826,338	50,526	1,290,000	30,000	1,260,000	464,809	260,668	24,101	36,669	111,305	32,066	0	21,003	0		
1998	1,867,905	48,544	1,313,000	D	D	484,159	277,894	24,473	29,605	109,470	42,717	0	22,202	0		
Montana																
1987	54,381	17,763	7,000	0	7,000	29,425	11,299	7,325	3,197	7,604	0	0	193	0		
1989	NA	20,877	D	D	5,000	32,450	11,552	7,919	3,242	9,534	203	0	1,077	0		
1991	NA	26,133	D	D	D	38,149	13,801	8,884	4,406	10,820	238	0	1,340	0		
1993	90,438	27,075	14,000	D	D	48,080	21,399	9,029	3,234	14,011	407	0	1,283	0		
1995	119,109	33,553	17,000	D	D	66,879	27,382	12,914	5,825	20,172	586	0	1,677	0		
1997	199,351	33,199	92,000	D	D	70,591	31,261	14,368	8,470	15,684	808	0	3,561	0		
1998	190,675	33,101	82,000	D	D	72,425	35,730	13,784	8,437	13,435	1,039	0	3,149	0		
Nebraska																
1987	160,209	21,899	62,000	D	D	74,468	33,275	16,123	6,664	14,893	3,513	0	1,842	0		
1989	181,706	22,074	64,000	D	D	93,506	36,761	22,926	9,098	20,676	4,045	0	2,126	0		
1991	210,756	21,920	59,000	7,000	52,000	123,711	40,597	35,817	7,845	34,780	4,672	0	6,125	0		
1993	294,531	24,730	128,000	14,000	114,000	135,737	38,023	39,576	8,891	36,406	12,841	0	6,064	0		
1995	335,930	23,132	150,000	D	D	157,044	54,746	42,331	10,933	45,536	3,498	0	5,754	0		
1997	275,359	23,741	71,000	D	D	175,592	60,388	47,089	13,686	49,290	5,139	0	5,026	0		
1998	314,645	28,873	93,000	D	D	186,200	62,578	46,602	16,749	55,018	5,253	0	6,572	0		
Nevada																
1987	167,996	76,509	57,000	D	D	34,254	18,563	1,973	3,983	8,805	930	0	233	0		
1989	152,642	77,198	29,000	D	D	45,555	26,587	2,682	4,296	10,396	1,594	0	889	0		
1991	261,232	108,614	83,000	63,000	20,000	66,742	38,221	2,608	5,323	19,675	915	0	2,876	0		
1993	218,503	71,044	67,000	D	D	79,124	43,196	4,361	5,245	25,193	1,129	0	1,335	0		
1995	445,028	34,669	322,000	D	D	86,902	47,708	6,460	6,941	24,798	995	0	1,457	0		
1997	516,544	46,025	380,000	D	D	88,331	43,934	4,411	5,464	30,749	3,773	0	2,188	0		
1998	570,509	48,514	434,000	D	D	83,888	45,496	4,533	5,355	24,314	4,190	0	4,107	0		
New Hampshire																
1987	164,130	19,006	94,000	D	D	50,928	34,633	2,045	2,081	8,114	4,055	0	196	0		
1989	NA	21,510	D	D	95,000	62,172	41,816	2,646	2,951	9,333	5,426	0	97	0		
1991	NA	88,342	D	D	102,000	78,975	52,833	4,375	3,997	10,225	7,545	0	330	0		
1993	438,620	88,839	248,000	D	D	99,475	67,727	5,846	4,842	11,768	9,292	0	2,306	0		
1995	597,697	30,902	472,000	36,000	436,000	93,073	60,131	3,963	3,919	12,948	12,112	0	1,722	0		
1997	798,601	36,861	652,000	D	D	107,505	67,282	7,990	4,880	15,058	12,295	0	2,235	0		
1998	1,339,951	33,959	1,187,000	D	D	117,323	70,966	8,300	6,209	17,439	14,409	0	1,669	0		

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987–98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't		Industry			Universities & colleges					Other nonprofit institutions		Nonprofit FFRDCs	
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d	
Funding sector:	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d	
New Jersey															
1987	6,724,917	255,275	6,141,000	457,000	5,684,000	214,696	95,294	37,489	11,780	55,142	14,991	107,000	6,946	0	
1989	7,228,887	429,755	6,381,000	601,000	5,780,000	283,897	119,237	45,150	16,428	82,798	20,284	112,600	21,635	0	
1991	8,777,671	512,928	7,810,000	855,000	6,955,000	352,310	150,044	43,361	19,502	114,157	25,246	90,800	11,528	105	
1993	9,180,997	509,310	8,162,000	378,000	7,784,000	373,816	166,835	36,361	26,115	116,307	28,198	116,000	11,876	7,995	
1995	9,128,185	343,667	8,200,000	197,000	8,002,000	443,371	208,934	39,535	25,861	135,607	33,434	125,685	11,332	4,130	
1997	12,067,086	459,286	11,069,000	117,000	10,952,000	462,052	224,084	37,274	26,186	139,540	34,968	59,146	15,641	1,961	
1998	11,368,389	392,554	10,415,000	134,000	10,282,000	484,642	227,954	39,773	27,236	150,483	39,196	53,005	17,106	6,082	
New Mexico															
1987	2,392,370	420,821	993,000	906,000	87,000	132,145	75,923	17,908	20,123	14,187	4,004	835,000	11,404	na	
1989	2,679,324	593,878	1,034,000	D	D	136,189	76,777	14,612	16,433	17,860	10,507	902,400	4,857	8,000	
1991	2,589,385	392,967	1,064,000	1,001,000	63,000	170,139	94,309	15,467	19,530	28,762	12,071	947,600	7,241	7,438	
1993	2,751,608	503,783	962,000	D	D	186,750	113,060	13,998	18,743	28,507	12,442	1,084,000	6,762	8,313	
1995	3,295,475	481,047	1,461,000	1,380,000	81,000	230,393	156,554	17,298	10,696	38,562	7,283	1,109,400	6,218	7,417	
1997	3,027,688	366,253	1,310,000	D	D	219,150	144,639	14,954	9,915	42,442	7,200	1,121,670	10,362	253	
1998	3,031,678	395,908	1,205,000	D	D	228,623	152,137	12,667	12,559	45,780	5,480	1,187,000	15,147	0	
New York															
1987	8,185,452	160,073	6,559,000	3,426,000	13,904,000	1,108,478	758,040	53,349	62,173	126,931	107,985	221,000	136,901	0	
1989	9,877,995	89,334	8,071,000	1,480,000	6,591,000	1,311,643	854,137	68,474	70,598	170,970	147,464	255,200	150,818	0	
1991	10,315,493	173,988	8,268,000	1,558,000	6,710,000	1,419,765	918,063	75,490	85,282	190,624	150,306	283,900	169,570	270	
1993	10,973,876	131,440	8,820,000	1,392,000	7,428,000	1,544,702	1,052,171	75,571	87,804	180,217	148,939	293,000	184,734	0	
1995	10,954,561	117,250	8,651,000	1,821,000	6,831,000	1,702,414	1,107,468	95,941	98,200	206,258	194,547	281,148	202,749	0	
1997	12,306,752	136,215	9,939,000	2,078,000	7,861,000	1,783,810	1,151,542	80,142	95,778	245,093	211,255	239,052	208,675	0	
1998	13,730,588	191,988	11,176,000	2,216,000	8,960,000	1,924,667	1,223,705	82,308	96,367	286,449	235,838	0	221,286	216,647	
North Carolina															
1987	2,212,322	129,508	1,741,000	5,000	1,736,000	313,819	195,177	54,897	23,825	25,757	14,163	0	27,995	0	
1989	1,820,827	59,738	1,305,000	5,000	1,300,000	419,848	261,896	61,259	41,375	41,222	14,096	0	36,241	0	
1991	1,965,076	150,956	1,285,000	4,000	1,281,000	501,841	303,921	71,990	55,079	51,758	19,093	0	27,279	0	
1993	2,745,087	174,294	1,929,000	16,000	1,913,000	604,581	377,983	74,041	69,950	63,862	18,745	0	37,212	0	
1995	3,191,790	220,179	2,226,000	15,000	2,212,000	686,609	431,682	97,647	74,086	61,857	21,337	0	59,002	0	
1997	4,667,017	229,610	3,590,000	111,000	3,478,000	785,980	439,124	115,804	96,116	105,767	29,169	0	61,427	0	
1998	4,559,996	235,873	3,362,000	12,000	3,350,000	898,513	516,489	128,976	120,934	96,259	35,855	0	63,610	0	
North Dakota															
1987	116,487	20,343	60,000	D	D	35,912	15,385	13,731	3,578	2,391	827	0	232	0	
1989	75,833	20,217	27,000	D	27,000	27,951	19,396	918	2,521	4,113	1,003	0	665	0	
1991	NA	23,938	D	D	D	48,930	21,570	1,327	2,308	22,336	1,389	0	1,231	0	
1993	91,534	27,220	9,000	D	D	54,175	25,223	1,532	2,173	23,595	1,652	0	1,139	0	
1995	97,606	25,042	12,000	D	D	59,617	27,841	1,534	3,346	25,043	1,853	0	947	0	
1997	115,946	26,401	33,000	0	33,000	56,096	24,207	1,070	3,439	25,554	1,826	0	449	0	
1998	119,450	27,360	34,000	0	34,000	56,945	23,191	1,123	3,806	26,091	3,806	0	1,145	0	

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987-98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't	Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions	Nonprofit FFRDCs	
	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d
Ohio														
1987	4,934,310	991,290	3,569,000	2,206,000	2,807,000	329,344	193,615	35,038	22,265	47,189	31,237	0	44,676	0
1989	5,474,881	1,055,523	3,946,000	681,000	3,265,000	427,345	242,559	48,072	37,591	62,068	37,055	0	46,013	0
1991	5,975,241	688,926	4,726,000	778,000	3,948,000	503,725	284,791	53,079	37,948	73,765	54,142	0	56,590	0
1993	6,397,650	583,033	5,144,000	1,030,000	4,114,000	593,542	348,166	46,038	47,781	89,146	62,411	0	77,075	0
1995	5,314,554	599,044	4,001,000	574,000	3,428,000	642,596	375,061	47,690	54,316	106,701	58,828	0	71,914	0
1997	7,144,779	681,170	5,608,000	604,000	5,004,000	763,827	417,921	70,078	82,653	143,890	49,285	0	91,782	0
1998	6,969,763	698,173	5,338,000	605,000	4,732,000	808,210	444,316	74,449	88,340	151,611	49,494	0	125,380	0
Oklahoma														
1987	534,354	33,729	384,000	D	D	99,363	25,880	3,463	7,078	57,472	5,470	0	17,262	0
1989	507,700	46,083	332,000	D	D	113,279	33,067	5,062	5,667	60,063	9,420	0	16,338	0
1991	604,019	40,970	392,000	2,000	390,000	152,624	42,806	13,593	8,559	74,265	13,401	0	18,425	0
1993	533,398	34,311	311,000	2,000	309,000	172,968	56,475	22,399	10,320	67,338	16,436	0	15,119	0
1995	528,764	45,104	288,000	38,000	249,000	186,371	59,504	19,699	11,453	79,107	16,608	0	9,289	0
1997	643,755	44,238	428,000	45,000	383,000	162,871	71,421	18,944	14,036	45,309	13,161	0	8,646	0
1998	512,899	51,038	245,000	2,000	243,000	208,873	83,785	37,415	13,320	59,574	14,779	0	7,988	0
Oregon														
1987	475,890	31,517	294,000	D	D	135,326	81,932	18,645	4,059	16,007	14,683	0	15,047	0
1989	578,941	42,199	355,000	30,000	325,000	161,215	99,141	20,860	4,857	16,717	19,640	0	20,527	0
1991	600,175	47,486	349,000	21,000	321,000	179,384	108,849	25,727	6,850	21,519	16,439	0	24,305	0
1993	773,855	50,795	471,000	32,000	439,000	225,750	134,956	29,762	8,578	34,209	18,245	0	26,310	0
1995	1,088,654	55,959	741,000	35,000	706,000	258,575	158,076	30,312	11,693	37,453	21,041	0	33,120	0
1997	1,519,732	90,017	1,102,000	28,000	1,075,000	290,603	195,030	32,335	9,647	35,824	17,767	0	37,112	0
1998	1,910,443	87,846	1,492,000	26,000	1,467,000	309,748	203,119	32,963	10,201	38,121	25,344	0	20,849	0
Pennsylvania														
1987	5,633,446	284,237	4,630,000	1,380,000	3,250,000	611,935	385,912	23,559	66,246	85,399	50,819	14,000	93,274	0
1989	5,790,920	274,016	4,632,000	1,907,000	2,725,000	761,337	468,993	32,466	91,733	109,498	58,647	20,900	102,667	0
1991	7,620,947	315,003	6,262,000	2,060,000	4,202,000	878,826	552,239	26,532	100,210	141,865	57,980	27,100	137,865	153
1993	8,277,907	353,951	6,711,000	1,142,000	5,569,000	1,019,006	676,963	20,177	111,569	149,296	61,001	35,000	158,950	0
1995	6,918,955	227,520	5,331,000	376,000	4,955,000	1,139,531	754,444	34,954	120,303	164,296	65,534	31,525	189,379	0
1997	8,209,081	151,216	6,609,000	672,000	5,937,000	1,241,180	807,553	41,685	139,325	182,835	69,782	32,229	175,456	0
1998	8,761,617	132,927	7,083,000	485,000	6,598,000	1,341,607	872,722	43,633	156,179	199,139	69,934	30,113	173,970	0
Rhode Island														
1987	553,281	239,969	234,000	D	D	65,516	51,313	2,136	5,380	5,293	1,394	0	13,796	0
1989	428,168	195,920	139,000	D	D	79,801	56,446	3,276	6,305	11,646	2,128	0	13,447	0
1991	484,693	226,367	152,000	11,000	141,000	88,448	59,616	5,278	3,709	17,520	2,325	0	17,878	0
1993	484,236	184,784	176,000	12,000	164,000	103,194	71,515	2,812	3,212	23,481	2,174	0	20,258	0
1995	896,570	254,302	520,000	D	D	105,501	72,461	3,225	2,479	25,644	1,692	0	16,767	0
1997	1,040,290	202,192	704,000	D	D	111,977	79,417	1,161	1,995	26,545	2,859	0	22,121	0
1998	1,677,063	222,106	1,320,000	D	D	111,979	77,737	2,857	2,074	26,130	3,181	0	22,978	0

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987–98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't	Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions	Nonprofit FFRDCs	
	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d
Funding sector:	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d
South Carolina														
1987	640,738	11,527	523,000	D	D	95,811	34,350	14,061	6,184	37,110	4,106	0	10,400	0
1989	575,597	59,660	386,000	D	D	120,137	41,627	17,421	7,906	44,864	8,319	0	9,800	0
1991	594,444	13,955	419,000	D	D	151,204	54,045	16,858	15,903	54,011	10,387	0	10,285	0
1993	713,450	38,208	495,000	D	D	178,174	73,020	16,057	14,242	52,850	22,005	0	2,068	0
1995	996,261	34,441	739,000	D	D	220,088	109,443	17,899	19,364	53,994	19,388	0	2,732	0
1997	1,039,818	34,019	783,000	83,000	700,000	219,000	102,887	20,697	8,682	65,914	20,820	0	3,799	0
1998	989,452	44,872	695,000	D	D	246,305	112,845	27,166	11,407	83,416	11,471	0	2,583	692
South Dakota														
1987	21,311	5,685	4,000	0	4,000	11,395	5,129	4,789	472	739	266	0	231	0
1989	22,274	5,563	4,000	0	4,000	12,449	6,166	4,905	316	840	222	0	262	0
1991	32,297	9,470	5,000	0	5,000	15,959	6,917	6,539	310	1,520	673	0	1,868	0
1993	58,634	13,236	22,000	D	D	22,196	9,100	9,686	486	2,140	784	0	1,202	0
1995	54,667	13,428	19,000	0	19,000	21,392	10,623	6,772	469	2,341	1,187	0	847	0
1997	71,365	19,307	26,000	0	26,000	24,558	10,879	8,341	811	3,043	1,484	0	1,500	0
1998	59,766	27,501	5,000	0	5,000	25,140	11,702	8,355	495	2,647	1,941	0	2,125	0
Tennessee														
1987	950,871	125,890	649,000	D	D	155,163	84,030	28,035	11,757	24,124	7,217	9,000	11,818	0
1989	1,294,796	135,383	930,000	D	D	207,471	127,627	31,365	10,367	28,221	9,891	7,800	14,142	0
1991	1,142,486	123,708	737,000	D	D	243,763	150,274	32,927	12,359	34,772	13,431	10,400	27,515	100
1993	1,212,807	86,547	792,000	D	D	277,686	180,177	31,255	15,743	34,150	16,361	11,000	45,574	0
1995	1,394,231	62,100	1,003,000	D	D	308,155	191,797	35,395	16,345	45,116	19,502	1,101	19,875	0
1997	1,566,151	77,836	1,089,000	D	D	329,710	198,805	37,911	17,430	52,844	22,720	44,022	25,583	0
1998	2,502,826	37,925	2,040,000	D	D	346,466	207,822	36,615	19,995	54,066	27,968	50,750	27,685	0
Texas														
1987	5,454,724	340,803	4,261,000	1,784,000	2,477,000	809,781	403,285	92,020	46,903	168,648	98,925	0	43,140	0
1989	6,581,710	464,111	5,028,000	1,848,000	3,180,000	1,014,305	488,137	123,805	63,575	210,128	128,660	0	75,294	0
1991	6,635,249	405,267	4,755,000	D	D	1,215,548	550,558	139,019	79,964	283,850	162,157	2,300	257,134	0
1993	6,965,939	467,760	4,882,000	640,000	4,242,000	1,387,088	682,785	157,954	89,554	292,807	163,988	5,000	224,091	0
1995	8,384,534	537,508	6,211,000	912,000	5,298,000	1,472,165	747,687	158,886	102,486	296,606	166,500	0	163,001	860
1997	9,487,282	559,634	7,265,000	784,000	6,481,000	1,581,200	844,746	170,457	132,352	269,793	163,852	0	80,394	1,054
1998	10,774,067	596,978	8,408,000	223,000	8,185,000	1,698,363	909,528	179,491	140,196	289,879	179,269	0	69,230	1,496
Utah														
1987	1,031,253	99,166	809,000	D	D	120,878	81,355	13,412	5,734	16,178	4,199	0	2,209	0
1989	620,604	66,414	387,000	D	D	164,828	109,053	17,183	5,503	27,822	5,267	0	2,362	0
1991	664,474	103,269	356,000	51,000	305,000	201,470	137,613	16,756	6,880	33,779	6,442	0	3,735	0
1993	751,165	140,556	411,000	51,000	360,000	194,685	136,630	13,075	9,303	27,825	7,852	0	4,924	0
1995	1,144,080	131,138	803,000	178,000	625,000	202,212	140,600	15,431	9,456	28,065	8,660	0	7,730	0
1997	1,381,073	117,231	1,027,000	199,000	829,000	234,151	158,237	17,876	14,452	35,822	7,764	0	2,691	0
1998	1,494,808	135,365	1,109,000	181,000	928,000	249,147	165,319	17,556	13,502	42,561	10,209	0	1,296	0

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987-98

(Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't	Industry			Universities & colleges					U&C FFRDCs	Other nonprofit institutions	Nonprofit FFRDCs	
	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d
Funding sector:														
Vermont														
1987	282,584	3,710	247,000	0	247,000	31,547	22,289	1,805	2,877	3,330	1,246	0	327	0
1989	NA	4,404	D	D	D	42,743	28,535	2,500	3,486	5,485	2,737	0	2,639	0
1991	NA	5,122	D	D	D	46,541	30,860	2,859	4,181	6,395	2,246	0	4,543	0
1993	342,809	5,601	284,000	D	D	49,839	31,530	2,666	4,573	8,253	2,817	0	3,369	0
1995	308,180	4,702	248,000	D	D	54,065	32,932	2,454	5,467	9,519	3,693	0	1,413	0
1997	313,881	7,400	246,000	D	D	59,526	34,042	2,683	5,399	11,465	5,937	0	955	0
1998	175,486	4,171	112,000	32,000	80,000	57,832	31,460	2,648	5,513	11,920	6,291	0	1,483	0
Virginia														
1987	2,558,458	883,844	1,342,000	1,068,000	274,000	207,934	116,137	36,400	15,895	29,841	9,661	0	124,680	na
1989	2,555,475	1,017,754	1,126,000	687,000	439,000	278,065	146,712	49,501	21,953	45,348	14,551	13,200	45,489	74,967
1991	2,775,919	1,107,423	1,115,000	679,000	436,000	342,476	183,798	51,474	31,899	52,857	22,448	28,600	42,826	139,594
1993	2,938,617	1,226,598	1,087,000	595,000	492,000	403,201	226,130	46,108	35,822	69,479	25,662	35,000	53,272	133,546
1995	3,897,444	1,580,530	1,577,000	743,000	834,000	446,776	261,604	46,814	45,897	64,379	28,082	74,015	41,651	177,472
1997	4,136,004	1,654,696	1,767,000	851,000	916,000	454,525	269,821	46,804	39,826	73,777	24,297	79,647	36,922	143,214
1998	4,933,647	1,480,464	2,707,000	1,614,000	1,093,000	490,695	288,634	49,343	46,173	76,938	29,607	75,963	43,793	135,732
Washington														
1987	3,520,818	122,468	3,071,000	D	D	235,927	166,458	5,561	21,183	33,623	9,102	0	91,423	na
1989	3,224,988	111,220	2,716,000	D	D	276,885	205,150	6,063	21,393	36,126	8,153	0	60,549	60,334
1991	3,889,660	132,503	3,215,000	D	D	349,667	253,381	11,351	28,107	45,229	11,599	0	72,156	120,334
1993	5,421,959	113,263	4,689,000	891,000	3,798,000	427,763	312,497	13,693	33,506	52,301	15,766	0	75,104	116,829
1995	5,240,679	159,837	4,294,000	D	D	485,970	340,327	13,761	39,429	77,212	15,241	0	95,900	204,972
1997	7,543,329	167,356	6,610,000	D	D	507,659	365,814	14,845	40,882	69,433	16,685	0	114,787	143,527
1998	8,465,553	183,685	7,476,000	D	D	534,410	384,074	13,119	41,838	76,678	18,701	0	121,688	149,770
West Virginia														
1987	187,642	56,605	87,000	D	D	26,704	13,011	871	884	10,736	1,202	17,000	333	0
1989	NA	63,239	D	D	80,000	39,368	17,339	1,255	3,963	15,081	1,730	18,400	2,098	0
1991	NA	76,078	D	D	69,000	50,772	20,479	1,564	11,170	13,191	4,368	21,900	4,985	0
1993	279,583	93,059	100,000	D	D	55,021	31,662	2,004	3,973	14,132	3,250	28,000	3,503	0
1995	475,040	139,595	243,000	D	D	53,399	30,464	2,023	3,160	13,470	4,282	33,047	5,999	0
1997	427,415	86,663	233,000	D	D	63,638	29,623	2,413	3,719	23,190	4,693	33,172	10,942	0
1998	420,704	96,682	225,000	D	D	63,446	25,301	3,053	4,547	26,525	4,020	34,708	868	0
Wisconsin														
1987	1,538,985	21,745	1,217,000	36,000	1,181,000	297,411	170,235	49,800	11,446	42,017	23,913	0	2,829	0
1989	1,398,630	26,945	1,030,000	32,000	998,000	336,815	197,818	55,372	16,268	43,304	24,053	0	4,870	0
1991	1,573,365	32,321	1,140,000	24,000	1,116,000	387,621	217,590	64,386	18,715	52,522	34,408	0	13,423	0
1993	1,851,751	38,190	1,343,000	D	D	444,192	255,195	68,410	18,698	53,725	48,164	0	26,369	0
1995	2,226,046	40,344	1,706,000	33,000	1,673,000	472,982	270,622	42,549	16,873	92,115	50,823	0	6,720	0
1997	2,255,616	42,606	1,707,000	29,000	1,678,000	497,289	283,701	41,073	19,075	97,873	55,567	0	8,721	0
1998	2,501,029	38,021	1,919,000	D	D	535,775	300,185	44,177	20,210	110,606	60,597	0	8,233	0

See explanatory notes, if any, and SOURCE if any at end of table.

Appendix table 4-22.

R&D expenditures by state, performing sector, and sources of funds: 1987–98
 (Thousands of current dollars)

Performing sector:	Total R&D	Federal Gov't			Industry						Universities & colleges			U&C FFRDCs	Other nonprofit institutions			
		Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d				
Funding sector:	Total R&D	Federal Gov't	Total ^a	Federal Gov't ^a	Industry ^b	Total	Federal Gov't	Non-Federal Gov't	Industry	U&Cs	Nonprofit	Federal Gov't ^c	Federal Gov't ^d	Federal Gov't ^d				
Wyoming																		
1987	35,803	8,146	4,000	0	4,000	17,316	8,701	1,129	1,216	6,176	94	0	6,341	0				
1989	NA	8,519	D	D	D	23,310	13,804	1,539	1,535	6,226	206	0	20,858	0				
1991	41,037	9,339	2,000	0	2,000	23,009	12,782	1,848	2,000	6,140	239	0	6,689	0				
1993	62,907	10,068	15,000	D	D	32,556	14,575	4,111	2,268	10,637	965	0	5,283	0				
1995	86,767	8,669	25,000	D	D	40,470	15,373	3,125	1,930	17,454	2,588	0	12,628	0				
1997	86,942	8,720	28,000	0	28,000	47,753	15,003	5,990	2,226	23,743	791	0	2,469	0				
1998	65,318	11,991	2,000	0	2,000	48,500	17,806	5,366	3,114	21,275	939	0	2,827	0				

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges; NA = not available; na = details not available but included in "other nonprofit institutions" totals; D = data withheld to avoid disclosing operations of individual companies or because of imputations of more than 50 percent

^aIncludes performance at industry FFRDCs.

^bIndustry sources of industry R&D expenditures include all non-Federal sources of industry R&D expenditures.

^cIncludes total R&D expenditures of FFRDCs administered by academic institutions.

^dOther sources of support for nonprofit institutions were unavailable by state. For 1987, Federal R&D support to "other nonprofit institutions" and "nonprofit FFRDCs" are combined in the "other nonprofit institution" totals.

NOTE: Industry R&D data are in reference to calendar years; other R&D data are in reference to fiscal years but may serve as approximations to calendar year data.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001). Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>.

Appendix table 4-23.

Total R&D and gross state product, by state: 1999

Rank	State	R&D (millions of current dollars)	GSP (percent)	R&D/GSP (percent)	Rank in R&D/GSP	U.S. R&D (percent)	Cumulative (percent)
1	California	47,965	1,229,098	3.90	8	20.69	20.69
2	Michigan	18,799	308,310	6.10	2	8.11	28.80
3	New York	14,110	754,590	1.87	25	6.09	34.88
4	Texas	12,429	687,272	1.81	26	5.36	40.25
5	Massachusetts	12,190	262,564	4.64	4	5.26	45.50
6	Pennsylvania	10,695	382,980	2.79	15	4.61	50.12
7	New Jersey	10,536	331,544	3.18	12	4.54	54.66
8	Illinois	9,719	445,666	2.18	21	4.19	58.85
9	Washington	8,336	209,258	3.98	7	3.60	62.45
10	Maryland	8,087	174,710	4.63	5	3.49	65.94
11	Ohio	8,082	361,981	2.23	20	3.49	69.42
12	North Carolina	5,268	258,592	2.04	23	2.27	71.70
13	Virginia	5,100	242,221	2.11	22	2.20	73.90
14	Arizona	5,091	143,683	3.54	11	2.20	76.09
15	Connecticut	4,436	151,779	2.92	13	1.91	78.01
16	Florida	4,265	442,895	0.96	37	1.84	79.85
17	Colorado	4,209	153,728	2.74	16	1.82	81.66
18	Minnesota	3,905	172,982	2.26	19	1.68	83.35
19	New Mexico	3,279	51,026	6.43	1	1.41	84.76
20	Georgia	2,960	275,719	1.07	35	1.28	86.04
21	Indiana	2,763	182,202	1.52	30	1.19	87.23
22	Wisconsin	2,566	166,481	1.54	28	1.11	88.34
23	District of Columbia	2,510	55,832	4.50	6	1.08	89.42
24	Tennessee	2,290	170,085	1.35	31	0.99	90.41
25	Missouri	2,009	170,470	1.18	32	0.87	91.27
26	Oregon	1,974	109,694	1.80	27	0.85	92.12
27	Alabama	1,761	115,071	1.53	29	0.76	92.88
28	Rhode Island	1,651	32,546	5.07	3	0.71	93.60
29	Kansas	1,556	80,843	1.92	24	0.67	94.27
30	Utah	1,474	62,641	2.35	17	0.64	94.90
31	Delaware	1,343	34,669	3.87	9	0.58	95.48
32	Idaho	1,309	34,025	3.85	10	0.56	96.05
33	New Hampshire	1,256	44,229	2.84	14	0.54	96.59
34	Iowa	1,003	85,243	1.18	33	0.43	97.02
35	South Carolina	979	106,917	0.92	38	0.42	97.44
36	Kentucky	968	113,539	0.85	39	0.42	97.86
37	Oklahoma	664	86,382	0.77	42	0.29	98.15
38	Louisiana	626	128,959	0.49	49	0.27	98.42
39	Mississippi	476	64,286	0.74	43	0.21	98.62
40	Nevada	458	69,864	0.66	46	0.20	98.82
41	West Virginia	439	40,685	1.08	34	0.19	99.01
42	Nebraska	417	53,744	0.78	41	0.18	99.19
43	Vermont	389	17,164	2.27	18	0.17	99.36
44	Arkansas	378	64,773	0.58	47	0.16	99.52
45	Hawaii	270	40,914	0.66	45	0.12	99.64
46	Maine	225	34,064	0.66	44	0.10	99.73
47	Montana	169	20,636	0.82	40	0.07	99.81
48	North Dakota	168	16,991	0.99	36	0.07	99.88
49	Alaska	152	26,353	0.58	48	0.07	99.94
50	Wyoming	66	17,448	0.38	50	0.03	99.97
51	South Dakota	60	21,631	0.28	51	0.03	100.00
	Other and unknown	12,311	NA	NA	NA	NA	NA

GSP = gross state product; NA = not applicable

NOTES: U.S. R&D total = 244,143. U.S. total R&D attributable to states = 231,832. The "other and unknown" category includes R&D performed within the 50 states or the District of Columbia but where the specific location of such performance was not provided by survey respondents. It also includes R&D conducted by organizations within the United States but where actual performance does not take place in a particular state or the District of Columbia, e.g., research conducted on marine vessels and research in Puerto Rico. Finally, it also includes a small accounting difference due to the total for the United States being based on calendar year data, whereas data by state pertain to the fiscal year for nonindustrial performance. The "U.S. total attributable to states" is the U.S. total excluding the "other and unknown" component. When state R&D is taken as a percentage of U.S. R&D, the denominator used is the U.S. total attributable to states.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Research and Development in Industry: 1999*, Early Release Tables (Arlington, VA, 2001); NSF/SRS, *Academic Research and Development Expenditures: Fiscal Year 1999*, NSF 01-329 (Arlington, VA, 2001); NSF/SRS, *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001*, NSF 01-328 (Arlington, VA, 2001); and Department of Commerce, Bureau of Economic Analysis.

Appendix table 4-24.

Trends in R&D and Federal outlays: fiscal years 1970, 1980, 1990, 2000, and 2002

Composition of Federal outlays	1970	1980	1990	2000	2002 (proposed)
Billions of current dollars					
Total Federal outlays	195.6	590.9	1,253.2	1,788.8	1,960.6
Mandatory programs ^a	61.0	262.1	568.2	950.8	1,080.7
Net interest	14.4	52.5	184.4	223.2	188.1
Total discretionary	120.3	276.3	500.6	614.8	691.7
Defense discretionary	81.9	134.6	300.1	295.0	319.2
R&D outlays	8.0	14.6	41.1	41.1	46.8
International discretionary	4.0	12.8	19.1	21.3	24.5
R&D outlays	NA	NA	NA	NA	NA
Domestic discretionary	34.4	128.9	181.4	298.6	348.0
R&D outlays	7.1	15.6	22.7	32.9	40.4
Total Federal R&D outlays	15.1	30.2	63.8	74.0	87.2
Total Federal outlays (percent)					
Total Federal outlays	100.0	100.0	100.0	100.0	100.0
Mandatory programs ^a	31.2	44.4	45.3	53.2	55.1
Net interest	7.4	8.9	14.7	12.5	9.6
Total discretionary	61.5	46.8	39.9	34.4	35.3
Defense discretionary	41.9	22.8	23.9	16.5	16.3
R&D outlays	4.1	2.5	3.3	2.3	2.4
International discretionary	2.0	2.2	1.5	1.2	1.2
R&D outlays	NA	NA	NA	NA	NA
Domestic discretionary	17.6	21.8	14.5	16.7	17.7
R&D outlays	3.6	2.6	1.8	1.8	2.1
Total Federal R&D outlays	7.7	5.1	5.1	4.1	4.4
Federal R&D outlays as proportion of corresponding discretionary outlays (percent)					
Total Federal R&D/total discretionary outlays ...	12.6	10.9	12.7	12.0	12.6
Defense	9.8	10.8	13.7	13.9	14.7
Domestic	20.7	12.1	12.5	11.0	11.6

NA = not available

^aIncludes Social Security, Medicare, Medicaid, and other programs.SOURCE: U.S. Office of Management and Budget, *Historical Tables, Budget of the United States Government: Fiscal Year 2002* (Washington, DC, U.S. Government Printing Office).

Appendix table 4-25.

Estimated Federal obligations for R&D and R&D plant, by selected agency, performer, and character of work: fiscal year 2001

(Millions of current dollars)

Agency	Total	Federal intramural	Industrial firms	FFRDCs administered by industry	U&Cs	FFRDCs administered by U&Cs	Other nonprofit	FFRDCs administered by nonprofits	State and local government	Foreign
Total R&D and R&D plant										
Total, all agencies	83,609	19,794	33,588	1,708	17,918	4,659	4,190	1,058	411	285
Department of Agriculture	1,892	1,364	11	0	501	0	9	0	3	4
Department of Commerce	1,163	812	187	0	127	0	24	0	12	0
Department of Defense	36,462	8,628	25,316	110	1,534	255	154	387	10	66
Department of Energy	7,656	871	1,173	1,388	722	2,813	60	626	3	1
Department of Health and Human Services	19,463	3,873	1,152	187	10,991	46	2,997	24	132	60
Department of the Interior	620	546	19	0	48	0	1	0	5	2
Department of Transportation	882	289	326	1	61	0	18	5	181	1
Environmental Protection Agency	672	125	320	0	152	0	63	0	11	2
National Aeronautics and Space Administration	9,966	2,507	4,850	1	787	1,305	385	9	11	111
National Science Foundation	3,431	61	134	0	2,788	230	193	1	7	17
All other agencies	1,401	718	99	19	207	10	286	6	35	22
R&D										
Total, all agencies	81,526	19,352	33,026	1,386	17,724	4,189	4,176	978	411	285
Department of Agriculture	1,779	1,251	11	0	501	0	9	0	3	4
Department of Commerce	1,127	776	187	0	127	0	24	0	12	0
Department of Defense	36,397	8,579	25,302	110	1,534	254	154	387	10	66
Department of Energy	6,793	871	1,139	1,068	706	2,399	60	547	3	1
Department of Health and Human Services	19,235	3,678	1,152	186	10,967	46	2,990	24	132	60
Department of the Interior	619	546	18	0	48	0	1	0	5	2
Department of Transportation	866	289	311	1	61	0	18	5	181	1
Environmental Protection Agency	530	125	178	0	152	0	63	0	11	2
National Aeronautics and Space Administration	9,602	2,497	4,515	1	787	1,286	385	9	11	111
National Science Foundation	3,180	27	114	0	2,634	194	186	1	7	17
All other agencies	1,397	714	99	19	207	10	286	6	35	22
Basic research										
Total, all agencies	20,274	3,650	1,193	325	10,906	1,747	1,980	340	69	63
Department of Agriculture	828	609	4	0	208	0	3	0	1	2
Department of Commerce	65	48	2	0	14	0	0	0	0	0
Department of Defense	1,213	393	102	1	657	8	27	16	1	8
Department of Energy	2,384	58	126	217	522	1,130	18	310	2	1
Department of Health and Human Services	10,398	1,662	438	107	6,417	28	1,651	12	49	33
Department of the Interior	56	52	0	0	3	0	0	0	0	0
Department of Transportation	90	42	36	0	6	0	6	0	1	0
Environmental Protection Agency	58	14	19	0	17	0	7	0	1	0
National Aeronautics and Space Administration	1,898	475	392	0	557	386	77	1	6	3
National Science Foundation	2,987	27	73	0	2,490	194	179	1	6	17
All other agencies	296	271	0	0	15	0	11	0	0	0
Applied research										
Total, all agencies	18,414	6,142	3,925	586	4,790	1,201	1,360	130	219	59
Department of Agriculture	810	506	7	0	287	0	6	0	2	2
Department of Commerce	877	681	95	0	97	0	4	0	0	0
Department of Defense	3,197	1,103	1,446	22	459	69	68	13	6	10
Department of Energy	2,140	463	153	486	101	822	21	94	0	0
Department of Health and Human Services	6,150	1,525	374	57	3,171	14	926	10	53	20
Department of the Interior	527	462	14	0	43	0	1	0	5	2
Department of Transportation	563	173	200	1	48	0	9	5	126	1
Environmental Protection Agency	382	90	128	0	109	0	45	0	8	1
National Aeronautics and Space Administration	2,803	805	1,402	0	187	286	114	2	2	3
National Science Foundation	193	0	41	0	144	0	6	0	0	0
All other agencies	773	333	66	19	142	10	161	6	15	21
Development										
Total, all agencies	42,838	9,560	27,908	474	2,027	1,241	835	508	123	162
Department of Agriculture	141	135	0	0	6	0	0	0	0	0
Department of Commerce	185	46	90	0	16	0	20	0	12	0
Department of Defense	31,986	7,083	23,754	86	417	177	60	357	3	49
Department of Energy	2,270	350	861	365	83	447	21	143	1	0
Department of Health and Human Services	2,686	491	340	23	1,379	4	413	2	29	6
Department of the Interior	37	31	4	0	1	0	0	0	0	0
Department of Transportation	213	75	75	0	7	0	3	0	53	0
Environmental Protection Agency	91	21	30	0	26	0	11	0	2	0
National Aeronautics and Space Administration	4,901	1,217	2,721	0	42	613	193	6	2	106
National Science Foundation	0	0	0	0	0	0	0	0	0	0
All other agencies	327	109	33	0	51	0	115	0	20	1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-25.

Estimated Federal obligations for R&D and R&D plant, by selected agency, performer, and character of work: fiscal year 2001

(Millions of current dollars)

Agency	Total	Federal intramural	Industrial firms	FFRDCs administered by industry	U&Cs	FFRDCs administered by U&Cs	Other nonprofit	FFRDCs administered by nonprofits	State and local government	Foreign
R&D plant										
Total, all agencies	2,083	442	562	322	194	470	14	80	0	0
Department of Agriculture	113	113	0	0	0	0	0	0	0	0
Department of Commerce	36	36	0	0	0	0	0	0	0	0
Department of Defense	65	49	14	0	0	1	0	0	0	0
Department of Energy	863	0	34	320	16	414	0	79	0	0
Department of Health and Human Services	228	195	0	1	24	0	7	0	0	0
Department of the Interior	1	0	1	0	0	0	0	0	0	0
Department of Transportation	16	0	15	0	0	0	0	0	0	0
Environmental Protection Agency	142	0	142	0	0	0	0	0	0	0
National Aeronautics and Space Administration	364	10	335	0	0	19	0	0	0	0
National Science Foundation	251	34	20	0	154	36	7	0	0	0
All other agencies	4	4	0	0	0	0	0	0	0	0

FFRDCs = Federally Funded Research and Development Centers; U&Cs = universities and colleges

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001*, Detailed Statistical Tables, NSF 01-328 (Arlington, VA, June 2001)

Appendix table 4-26.
Federal R&D budget authority, by budget function: fiscal years 1980–2001

Year	Total	Nondefense																			
		Total defense	Total nondefense	Space research and technology		General science	Natural resources and environment	Transportation			Agriculture		Education, training, employment and social services		International affairs	Veterans benefits and services	Commerce and housing credit	Community and regional development	Administration of justice	Income security	General Gov't
				Health	Energy																
Millions of current dollars																					
1980	29,739	14,946	14,793	3,694	2,738	3,603	1,233	999	887	585	468	125	126	101	119	45	47	22			
1981	33,735	18,413	15,322	3,871	3,111	3,501	1,340	1,061	869	659	298	160	143	106	104	34	43	22			
1982	36,115	22,070	14,045	3,869	2,584	3,012	1,359	965	791	693	228	165	139	104	63	31	32	10			
1983	38,768	24,936	13,832	4,298	2,134	2,578	1,502	952	876	745	189	177	157	107	44	37	32	6			
1984	44,214	29,287	14,927	4,779	2,300	2,581	1,676	963	1,040	762	200	192	218	110	46	24	26	8			
1985	49,887	33,698	16,189	5,418	2,725	2,389	1,862	1,059	1,030	836	220	210	193	114	50	47	21	17			
1986	53,249	36,926	16,323	5,565	2,894	2,286	1,873	1,062	917	815	248	211	183	111	88	41	14	14			
1987	57,069	39,152	17,917	6,556	3,398	2,053	2,042	1,133	908	822	267	223	215	110	99	49	25	17			
1988	59,106	40,099	19,007	7,076	3,683	2,126	2,160	1,160	896	882	285	224	195	122	108	51	23	17			
1989	62,115	40,665	21,450	7,773	4,555	2,419	2,373	1,255	1,064	907	347	279	212	128	74	45	27	15			
1990	63,781	39,925	23,856	8,308	5,765	2,726	2,410	1,386	1,045	950	374	375	216	140	67	44	33	17			
1991	65,898	39,328	26,570	9,226	6,511	2,953	2,635	1,582	1,231	1,052	433	378	219	178	88	51	30	4			
1992	68,398	40,083	28,315	10,055	6,744	3,153	2,659	1,688	1,523	1,155	365	371	245	192	95	51	37	4			
1993	69,884	41,249	28,635	10,280	6,988	2,677	2,691	1,802	1,703	1,152	348	382	250	220	57	49	36	1			
1994	68,331	37,764	30,567	10,993	7,414	2,873	2,712	1,865	1,888	1,193	373	254	265	380	68	46	45	0			
1995	68,791	37,204	31,587	11,407	7,916	2,844	2,794	1,988	1,833	1,194	369	287	257	525	70	59	43	1			
1996	69,049	37,801	31,248	11,867	7,844	2,521	2,846	1,802	1,795	1,176	331	252	259	432	50	56	16	2			
1997	71,653	39,591	32,062	12,670	7,844	2,372	2,944	1,886	1,785	1,203	373	190	267	409	48	59	9	2			
1998	73,569	39,823	33,746	13,576	8,198	948	4,360	1,855	1,833	1,249	444	163	587	398	42	72	18	2			
1999	77,637	41,306	36,331	15,553	8,245	1,131	4,690	1,842	1,725	1,288	403	190	644	432	59	88	38	3			
2000	80,733	41,846	38,887	17,762	8,447	1,112	4,885	1,906	1,570	1,405	476	142	655	373	46	77	25	6			
2001	82,730	41,414	41,316	18,858	8,732	1,184	5,529	1,932	1,665	1,450	497	114	655	516	63	74	42	6			
Millions of constant 1996 dollars																					
1980	53,115	26,694	26,421	6,598	4,890	6,435	2,202	1,784	1,584	1,045	836	223	225	180	213	80	84	39			
1981	54,925	29,979	24,946	6,303	5,065	5,700	2,182	1,727	1,415	1,073	485	261	233	173	169	55	70	36			
1982	54,953	33,582	21,371	5,887	3,932	4,583	2,068	1,468	1,204	1,054	347	251	212	158	96	47	49	15			
1983	56,505	36,345	20,160	6,264	3,110	3,757	2,189	1,388	1,277	1,086	275	258	229	156	64	54	47	9			
1984	62,151	41,168	20,983	6,718	3,233	3,628	2,356	1,354	1,462	1,071	281	270	306	155	65	34	37	11			
1985	67,883	45,854	22,029	7,372	3,708	3,251	2,534	1,441	1,402	1,138	299	286	263	155	68	64	29	23			
1986	70,753	49,065	21,689	7,394	3,845	3,037	2,489	1,411	1,218	1,083	330	280	243	147	117	54	19	19			
1987	73,799	50,630	23,170	8,478	4,394	2,655	2,641	1,465	1,174	1,063	345	288	278	142	128	63	32	22			
1988	74,012	50,212	23,800	8,861	4,612	2,662	2,705	1,453	1,122	1,104	357	280	244	153	135	64	29	21			
1989	74,901	49,035	25,865	9,373	5,493	2,917	2,861	1,513	1,283	1,094	418	336	256	154	89	54	33	18			
1990	74,121	46,397	27,723	9,655	6,700	3,168	2,801	1,611	1,214	1,104	435	436	251	163	78	51	38	20			
1991	73,711	43,991	29,720	10,320	7,283	3,303	2,947	1,770	1,377	1,177	484	423	245	199	98	57	34	4			
1992	74,556	43,692	30,864	10,960	7,351	3,437	2,898	1,840	1,660	1,259	398	404	267	209	104	56	40	4			
1993	74,400	43,915	30,485	10,944	7,440	2,850	2,865	1,918	1,813	1,226	370	407	266	234	61	52	38	1			

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-26.
Federal R&D budget authority, by budget function: fiscal years 1980–2001

Year	Total	Nondefense																
		Total defense	Total nondefense	Space research and technology			General science	Natural resources and environment	Education, training, employment and social services			Veterans benefits and services	Commerce and housing credit	Community and regional development	Administration of justice	Income security	General Gov't	
				Health	Technology	Energy			Transportation	Agriculture	International affairs							
Millions of constant 1996 dollars (continued)																		
1994	71,208	39,354	31,854	11,456	7,726	2,994	2,826	1,944	1,967	1,243	389	265	276	396	71	48	47	0
1995	70,166	37,948	32,218	11,635	8,074	2,901	2,850	2,028	1,870	1,218	376	293	262	535	71	60	44	1
1996	69,049	37,801	31,248	11,867	7,844	2,521	2,846	1,802	1,795	1,176	331	252	259	432	50	56	16	2
1997	70,282	38,834	31,449	12,428	7,694	2,327	2,888	1,850	1,751	1,180	366	186	262	401	47	58	9	2
1998	71,150	38,514	32,636	13,130	7,928	917	4,217	1,794	1,773	1,208	429	158	568	385	41	70	17	2
1999	74,046	39,395	34,650	14,834	7,864	1,079	4,473	1,757	1,645	1,228	384	181	614	412	56	84	36	3
2000	75,543	39,156	36,387	16,620	7,904	1,041	4,571	1,783	1,469	1,315	445	133	613	349	43	72	23	6
2001	75,823	37,956	37,866	17,283	8,003	1,085	5,067	1,771	1,526	1,329	456	104	600	473	58	68	38	5

NOTES: Data for 1980–99 are actual budget authority, data for 2000 are preliminary estimates, and data for 2001 are proposed based on fiscal year 2001 budget. See Appendix table 4-1 for fiscal year GDP implicit price deflators used to convert current dollars to constant 1996 dollars. Beginning in fiscal year 1998, a number of Department of Energy programs were reclassified from energy to general science.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal R&D Funding by Budget Function: Fiscal Years 1999–2001*, NSF 01-316 (Arlington, VA, 2001).

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Science and Engineering Indicators – 2002

Appendix table 4-27.

Estimated Federal obligations for research, by agency and field of science and engineering: fiscal year 2001
 (Thousands of current dollars)

Agency	Total	Life sciences	Psychology	Physical sciences	Environmental sciences	Math and computer sciences	Engineering	Social sciences	Other sciences
Total, all agencies	38,688,104	18,249,178	751,834	4,430,192	3,243,244	2,517,255	7,088,686	995,881	1,411,834
Appalachian Regional Commission	750	0	0	0	0	0	0	750	0
Department of Agriculture	1,637,969	1,340,895	396	97,351	11,428	14,623	59,504	110,706	3,066
Department of Commerce	942,280	148,165	37	141,191	328,088	83,157	180,327	19,889	41,426
Department of Defense	4,410,304	534,489	55,897	381,272	286,493	744,773	2,065,123	35,248	307,009
Department of Education	187,347	21,802	3,700	0	0	0	13,903	147,942	0
Department of Energy	4,523,630	274,126	0	1,843,445	311,523	886,382	1,192,198	0	15,956
Department of Justice	36,450	0	500	0	0	500	0	27,040	8,410
Department of Labor	32,834	0	0	0	0	0	0	32,834	0
Department of State	1,500	0	0	0	0	0	0	1,500	0
Department of the Interior	582,567	157,319	0	500	386,758	7,936	12,719	17,335	0
Department of the Treasury	59,847	0	1,095	2,582	0	0	0	56,170	0
Department of Transportation	652,846	17,156	27,476	51,583	51,348	20,612	395,252	20,872	68,547
Department of Veterans Affairs	359,635	283,699	54,327	0	0	0	21,609	0	0
Department of Health and Human Services	16,548,385	14,313,905	579,616	245,695	47,432	158,418	224,526	230,573	748,220
Department of Housing and Urban Development	22,571	0	0	0	467	767	1,438	17,834	2,065
Environmental Protection Agency	439,353	197,102	0	11,089	123,720	20,748	51,533	4,525	30,636
Federal Communications Commission	3,525	0	0	0	0	43	2,386	1,096	0
Federal Trade Commission	1,414	0	0	0	0	0	0	1,414	0
International Development Cooperation Agency	165,776	87,169	0	0	5,058	0	0	73,126	423
Library of Congress	551	0	0	551	0	0	0	0	0
National Aeronautics and Space Administration	4,700,922	313,149	23,406	943,617	1,060,705	88,744	2,240,332	363	30,606
National Archives and Records Administration	120	0	0	120	0	0	0	0	0
National Science Foundation	3,179,928	520,756	5,384	668,502	626,202	490,552	574,836	139,035	154,661
Nuclear Regulatory Commission	53,000	0	0	0	0	0	53,000	0	0
Smithsonian Institution	103,000	39,446	0	42,694	4,022	0	0	16,029	809
Social Security Administration	41,600	0	0	0	0	0	0	41,600	0

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001, Detailed Statistical Tables*, NSF 01-328 (Arlington, VA, June 2001).

Science & Engineering Indicators – 2002

Appendix table 4-28.

R&D associated primarily with chemistry (nonmedical) and chemical engineering: 1985–98
 (Millions of constant 1996 dollars)

Year	Total	Federal obligations for research in chemistry and chemical engineering	Academic R&D (not federally funded) in chemistry and chemical engineering	Company-funded R&D in industrial chemicals and other chemicals (but not drugs and medicines)
1985	8,020	1,229	237	6,553
1986	8,121	1,202	271	6,649
1987	8,366	1,176	294	6,896
1988	8,899	1,187	322	7,391
1989	9,210	1,134	353	7,723
1990	9,958	1,197	379	8,382
1991	10,030	1,280	394	8,356
1992	9,459	1,271	395	7,793
1993	9,557	1,164	391	8,002
1994	8,767	1,158	387	7,222
1995	8,791	1,128	390	7,273
1996	9,248	1,092	405	7,751
1997	7,522	1,043	425	6,054
1998	10,271	980	444	8,847

SOURCES: Based on data from National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Research and Development in Industry: 1999*, Early Release Tables (Arlington, VA, 2001); NSF/SRS, *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001*, Detailed Statistical Tables, NSF 01-328 (Arlington, VA, June 2001); and NSF/SRS, *Academic Research and Development Expenditures: Fiscal Year 1998*, Detailed Statistical Tables, NSF 00-330 (Arlington, VA, 2000).

Appendix table 4-29.
R&D associated primarily with the life sciences: 1985-1998
(Millions of constant 1996 dollars)

Year	Total	Federal obligations for life sciences R&D expenditures by HHS and VA	Academic R&D (not federally funded) in life sciences and biomedical engineering	Company-funded R&D		
			Drugs and medicines	Food, kindred, and tobacco products and development expenditures by USDA	Health care services	Medical equipment and supplies
1985	18,635	9,281	3,045	4,724	1,585	NA
1986	19,533	9,557	3,378	4,856	1,741	NA
1987	20,881	10,389	3,623	5,278	1,590	NA
1988	22,249	10,767	3,870	6,109	1,503	NA
1989	23,658	11,343	4,155	6,619	1,541	NA
1990	24,524	11,736	4,448	6,840	1,501	NA
1991	26,354	12,461	4,651	7,748	1,494	NA
1992	27,204	12,218	4,763	8,639	1,584	NA
1993	28,992	12,883	4,888	9,710	1,511	NA
1994	30,026	13,278	5,105	10,025	1,619	NA
1995	30,907	13,537	5,292	10,400	1,679	NA
1996	30,678	13,678	5,582	9,769	1,649	NA
1997	35,554	14,216	5,967	10,018	1,757	623
1998	36,542	15,352	6,321	9,301	1,745	566
						2,973
						3,258

HHS = Department of Health and Human Services, VA = Department of Veterans Affairs, USDA = Department of Agriculture, NA = not available

SOURCES: Based on data from National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Research and Development in Industry: 1999, Early Release Tables* (Arlington, VA, 2001); NSF/SRS, *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001, Detailed Statistical Tables*, NSF 01-328 (Arlington, VA, June 2001); and NSF/SRS, *Academic Research and Development Expenditures: Fiscal Year 1998, Detailed Statistical Tables*, NSF 00-330 (Arlington, VA, 2000).

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Appendix table 4-30.

Budgetary impact of Federal research and experimentation tax credit: fiscal years 1981–2000
 (Millions of dollars)

Year	Outlay equivalent cost of credit (current dollars) ^a	Total Federal R&D outlays (current dollars)	Ratio of outlay equivalent cost to Federal R&D outlay (percent)	Outlay equivalent cost of credit (constant 1996 dollars) ^a
1981	205	34,168	0.6	334
1982	640	34,660	1.8	974
1983	1,010	35,900	2.8	1,472
1984	3,360	40,986	8.2	4,723
1985	2,430	47,216	5.1	3,307
1986	2,295	52,141	4.4	3,049
1987	2,715	53,256	5.1	3,511
1988	1,240	56,100	2.2	1,553
1989	1,590	60,760	2.6	1,917
1990	1,625	63,810	2.5	1,888
1991	1,070	62,183	1.7	1,197
1992	1,850	64,728	2.9	2,017
1993	1,900	68,378	2.8	2,023
1994	2,110	66,453	3.2	2,199
1995	1,820	68,432	2.7	1,856
1996	1,245	68,439	1.8	1,245
1997	1,360	71,073	1.9	1,334
1998	3,270	72,803	4.5	3,162
1999	2,625	74,136	3.5	2,504
2000	2,510	73,947	3.4	2,349

^a Outlay equivalent estimates are comparable to taxable outlay figures reported in the budget. These estimates make possible a comparison of the resource cost of the tax credit with the cost of direct Federal R&D expenditure support.

NOTES: Tax expenditure estimates are prepared by the U.S. Treasury Department, based on the income tax law enacted as of December 31 of the year for which the expenditures are reported. Figures in constant 1996 dollars were obtained using fiscal year GDP implicit price deflators. (See appendix table 4-1.)

SOURCES: U.S. Office of Management and Budget, *Historical Tables and Budget of the United States Government* (Washington, DC, U.S. Government Printing Office, annual series); and National Science Foundation, Division of Science Resources Studies, *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001, Detailed Statistical Tables*, NSF 01-328 (Arlington, VA, June 2001).

Appendix table 4-31.

Total expenditures for industrial R&D (financed by company, Federal, and other sources), by industry and size of company: 1997–99
 (Millions of current dollars)

Industry ^a	NAICS code	1997 ^b	1998 ^b	1999
Distribution by industry				
All industries	21–23, 31–33, 42, 44–81	157,539	169,180	182,823
Manufacturing	31–33	—	—	116,921
Food	311	1,244	1,305	1,132
Beverage and tobacco products	312	447	384	D
Textiles, apparel, and leather	313–16	378	399	334
Wood products	321	26	60	70
Paper, printing and support activities	322, 323	D	D	D
Petroleum and coal products	324	D	1,395	615
Chemicals	325	16,492	18,969	20,246
Basic chemicals	3251	1,859	3,610	2,746
Resin, synthetic rubber, fibers, and filament	3252	D	D	D
Pharmaceuticals and medicines	3254	D	D	D
Other chemicals	325 minus (3251–52, 3254)	D	D	D
Plastics and rubber products	326	1,484	1,625	1,785
Nonmetallic mineral products	327	548	558	D
Primary metals	331	992	D	470
Fabricated metal products	332	1,906	1,781	1,655
Machinery	333	5,610	D	6,057
Computer and electronic products	334	33,988	38,209	35,932
Computers and peripheral equipment	3341	D	D	D
Communications equipment	3342	2,930	8,974	6,003
Semiconductor and other electronic components	3344	D	9,131	10,701
Navigational, measuring, electromedical, and control instruments	3345	8,030	11,232	14,337
Other computer and electronic products	334 minus (3341–42, 3344–45)	543	D	D
Electrical equipment, appliances, and components	335	2,741	2,280	D
Transportation equipment	336	34,422	31,359	33,965
Motor vehicles, trailers, and parts	3361–63	D	D	D
Aerospace products and parts	3364	17,865	16,359	14,425
Other transportation equipment	336 minus (3361–64)	D	D	D
Furniture and related products	337	240	211	248
Miscellaneous manufacturing	339	3,457	D	3,851
Medical equipment and supplies	3391	3,041	D	D
Other miscellaneous manufacturing	339 minus 3391	416	525	D
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	23	D	0
Small manufacturing companies ^a	31–33 (with fewer than 50 employees)	2,509	2,316	3,019
Nonmanufacturing	21–23, 42, 44–81	—	—	65,902
Mining, extraction, and support activities ..	21	D	D	D
Utilities	22	D	D	142
Construction	23	241	D	691
Trade	42, 44, 45	D	16,492	19,616
Transportation and warehousing	48, 49	D	253	460
Information	51	10,595	13,581	15,389
Publishing	511	7,582	9,589	11,302
Newspaper, periodical, book, and database	5111	340	334	371
Software	5112	7,242	9,255	10,931
Broadcasting and telecommunications ...	513	D	D	D
Radio and television broadcasting	5131	D	D	D
Telecommunications	5133	D	D	D
Other broadcasting and telecommunications	513 minus (5131, 5133)	12	D	31

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-31.

Total expenditures for industrial R&D (financed by company, Federal, and other sources), by industry and size of company: 1997–99

(Millions of current dollars)

Industry ^a	NAICS code	1997 ^b	1998 ^b	1999
Other information	51 minus (511, 513)	D	D	D
Finance, insurance, and real estate	52, 53	D	D	D
Professional, scientific, and technical services	54	12,999	16,168	18,994
Architectural, engineering, and related services	5413	2,120	3,180	3,580
Computer systems design and related services	5415	D	D	D
Scientific R&D services	5417	7,023	9,062	10,470
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	D	D	D
Management of companies and enterprises	55	309	417	D
Health care services	621–23	639	617	642
Other nonmanufacturing	56, 61, 624, 71, 72, 81	953	2,124	D
Small nonmanufacturing companies ^a	21–23, 42, 44–81 (with fewer than 15 employees)	D	2,849	5,203
Number of employees		Distribution by size of company		
Total		157,539	169,180	182,823
5 to 25		3,304	4,943	7,004
25 to 49		3,028	3,323	4,750
50 to 99		4,251	6,415	7,225
100 to 249		7,176	8,681	7,213
250 to 499		6,304	6,815	7,892
500 to 999		4,966	5,495	7,032
1,000 to 4,999		19,590	21,525	24,840
5,000 to 9,999		14,266	14,053	16,376
10,000 to 24,999		21,520	24,876	24,922
25,000 or more		73,144	73,055	75,569

NAICS = North American Industry Classification System; — = Data not tabulated under NAICS code; D = data have been withheld to avoid disclosing operations of individual companies

^aThe frame from which the statistical sample was selected was divided into two partitions based on total company employment. In the manufacturing sector, companies with employment of 50 or more were included in the large company partition. In the nonmanufacturing sector, companies with employment of 15 or more were included in the large company partition. Companies in the respective sectors with employment below these values but with at least 5 employees were included in the small company partition. The purpose of partitioning the sample this way was to reduce the variability in industry estimates largely attributed to the random year-to-year selection of small companies by industry and the high sampling weights that sometimes were assigned to them. Because of this, detailed industry statistics were possible only from the large company partition. Statistics from the small company partition are shown separately and are included in manufacturing, nonmanufacturing, and all industries totals.

^bThe totals for “all industries” are identical to corresponding totals previously published using the Standard Industrial Classification (SIC) system. Detail published using NAICS may not add to total. See NOTES.

NOTES: Starting with the 1999 survey, estimates are based on NAICS. In prior years, estimates were based on the SIC system. For this table, companies in the 1997 and 1998 surveys were assigned NAICS industry codes based on their SIC industry codes. Consequently, the estimates for 1997 and 1998 in this table are not representative of the NAICS categories of industries in those years. They are included for comparison purposes only. R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations include funds from other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the Federal Government. Excluded from this table are R&D not performed within the company (e.g., R&D contracted out to other organizations) and R&D not performed in the United States (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Research and Development in Industry: 1999*, Early Release Tables (Arlington, VA, 2001).

Appendix table 4-32.

Company and other non-Federal funds for U.S. industrial R&D performance, by industry and size of company:**1997–99**

(Millions of current dollars)

Industry ^a	NAICS code	1997 ^b	1998 ^b	1999
Distribution by industry				
All industries	21–23, 31–33, 42, 44–81	133,611	145,016	160,288
Manufacturing	31–33	—	—	99,865
Food	311	1,244	1,305	1,132
Beverage and tobacco products	312	447	384	D
Textiles, apparel, and leather	313–16	378	399	334
Wood products	321	26	55	70
Paper, printing and support activities	322, 323	2,252	1,660	2,474
Petroleum and coal products	324	1,349	1,390	D
Chemicals	325	16,385	18,733	20,051
Basic chemicals	3251	1,840	3,467	2,648
Resin, synthetic rubber, fibers, and filament	3252	1,802	1,995	2,216
Pharmaceuticals and medicines	3254	10,213	9,601	12,236
Other chemicals	325 minus (3251–52, 3254)	2,530	3,670	2,951
Plastics and rubber products	326	1,480	1,625	1,785
Nonmetallic mineral products	327	546	D	595
Primary metals	331	754	588	457
Fabricated metal products	332	1,854	1,727	1,608
Machinery	333	5,470	5,831	5,658
Computer and electronic products	334	29,697	31,873	29,939
Computers and peripheral equipment	3341	7,718	8,276	4,126
Communications equipment	3342	2,751	8,456	5,797
Semiconductor and other electronic components	3344	14,033	9,072	10,624
Navigational, measuring, electromedical, and control instruments	3345	4,659	5,483	8,632
Other computer and electronic products	334 minus (3341–42, 3344–45)	537	585	760
Electrical equipment, appliances, and components	335	2,580	2,139	3,820
Transportation equipment	336	21,713	20,677	23,928
Motor vehicles, trailers, and parts	3361–63	14,340	13,781	17,987
Aerospace products and parts	3364	6,961	6,521	5,309
Other transportation equipment	336 minus (3361–64)	412	375	632
Furniture and related products	337	240	211	248
Miscellaneous manufacturing	339	3,447	3,888	3,825
Medical equipment and supplies	3391	3,031	3,363	3,251
Other miscellaneous manufacturing	339 minus 3391	416	525	574
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	23	D	0
Small manufacturing companies ^a	31–33 (with fewer than 50 employees)	2,357	2,188	2,950
Nonmanufacturing	21–23, 42, 44–81	—	—	60,423
Mining, extraction, and support activities	21	447	458	2,352
Utilities	22	209	177	126
Construction	23	241	445	690
Trade	42, 44, 45	15,862	16,415	19,521
Transportation and warehousing	48, 49	662	253	460
Information	51	10,191	13,025	14,892
Publishing	511	7,535	9,522	11,253
Newspaper, periodical, book, and database	5111	340	334	371
Software	5112	7,194	9,188	10,882
Broadcasting and telecommunications	513	2,139	1,788	1,393
Radio and television broadcasting	5131	D	D	D
Telecommunications	5133	D	1,710	D
Other broadcasting and telecommunications	513 minus (5131, 5133)	12	D	18

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-32.

Company and other non-Federal funds for U.S. industrial R&D performance, by industry and size of company:**1997–99**

(Millions of current dollars)

Industry ^a	NAICS code	1997 ^b	1998 ^b	1999
Other information	51 minus (511, 513)	518	1,716	2,246
Finance, insurance, and real estate	52, 53	1,326	1,700	1,570
Professional, scientific, and technical services	54	9,380	11,440	14,379
Architectural, engineering, and related services	5413	1,152	1,405	2,402
Computer systems design and related services	5415	2,995	2,861	3,989
Scientific R&D services	5417	4,688	6,446	7,413
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	544	728	575
Management of companies and enterprises	55	309	417	72
Health care services	621–23	635	584	631
Other nonmanufacturing	56, 61, 624, 71, 72, 81	911	2,095	752
Small nonmanufacturing companies ^a	21–23, 42, 44–81 (with fewer than 15 employees)	1,569	2,327	4,977
Number of employees		Distribution by size of company		
Total		133,611	145,016	160,288
5 to 25		2,836	4,305	6,393
25 to 49		2,745	2,857	4,382
50 to 99		3,819	5,834	6,623
100 to 249		6,606	7,494	6,540
250 to 499		5,848	6,249	7,407
500 to 999		4,590	5,132	6,441
1,000 to 4,999		19,049	20,905	23,944
5,000 to 9,999		13,655	13,517	14,182
10,000 to 24,999		20,597	23,921	24,525
25,000 or more		53,866	54,802	59,852

NAICS = North American Industry Classification System; — = Data not tabulated under NAICS code; D = data have been withheld to avoid disclosing operations of individual companies

^aThe frame from which the statistical sample was selected was divided into two partitions based on total company employment. In the manufacturing sector, companies with 50 or more employees were included in the large company partition. In the nonmanufacturing sector, companies with 15 or more employees were included in the large company partition. Companies in the respective sectors with employment below these values but with at least five employees were included in the small company partition. The purpose of partitioning the sample this way was to reduce the variability in industry estimates largely attributed to the random year-to-year selection of small companies by industry and the high sampling weights that sometimes were assigned to them. Because of this, detailed industry statistics were possible only from the large company partition. Statistics from the small company partition are shown separately and are included in manufacturing, nonmanufacturing, and all industries totals.

^bThe totals for “all industries” are identical to corresponding totals previously published using the Standard Industrial Classification (SIC) system. Detail published using NAICS may not add to total. See NOTES.

NOTES: Starting with the 1999 survey, estimates are based on NAICS. In prior years, estimates were based on the SIC system. For this table, companies in the 1997 and 1998 surveys were assigned NAICS industry codes based on their SIC industry codes. Consequently, the estimates for 1997 and 1998 in this table are not representative of the NAICS categories of industries in those years. They are included for comparison purposes only. R&D in this table is the industrial R&D performed within company facilities funded from all sources except the Federal Government. The funds are the company's own; funds from outside organizations include funds from other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are R&D not performed within the company (e.g., R&D contracted out to other organizations) and R&D not performed in the United States (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Research and Development in Industry: 1999*, Early Release Tables (Arlington, VA, 2001)

Appendix table 4-33.

Federal funds for industrial R&D performance, by industry and size of company: 1997–99
 (Millions of current dollars)

Industry ^a	NAICS code ^a	1997 ^b	1998 ^b	1999
Distribution by industry				
All industries	21–23, 31–33, 42, 44–81	23,928	24,164	22,535
Manufacturing	31–33	—	—	17,055
Food	311	0	0	0
Beverage and tobacco products	312	0	0	0
Textiles, apparel, and leather	313–16	0	0	0
Wood products	321	0	5	0
Paper, printing and support activities	322, 323	D	D	D
Petroleum and coal products	324	D	5	D
Chemicals	325	107	236	194
Basic chemicals	3251	19	143	98
Resin, synthetic rubber, fibers, and filament	3252	D	DD	
Pharmaceuticals and medicines	3254	D	D	D
Other chemicals	325 minus (3251–52, 3254)	D	D	D
Plastics and rubber products	326	4	0	0
Nonmetallic mineral products	327	2	D	D
Primary metals	331	238	D	12
Fabricated metal products	332	53	54	46
Machinery	333	141	D	399
Computer and electronic products	334	4,291	6,336	5,993
Computers and peripheral equipment	3341	D	D	D
Communications equipment	3342	180	518	206
Semiconductor and other electronic components	3344	D	59	77
Navigational, measuring, electromedical, and control instruments	3345	3,371	5,749	5,705
Other computer and electronic products	334 minus (3341–42, 3344–45)	6	D	D
Electrical equipment, appliances, and components	335	160	141	D
Transportation equipment	336	12,709	10,682	10,037
Motor vehicles, trailers, and parts	3361–63	D	D	D
Aerospace products and parts	3364	10,904	9,838	9,117
Other transportation equipment	336 minus (3361–64)	D	D	D
Furniture and related products	337	0	0	0
Miscellaneous manufacturing	339	10	D	26
Medical equipment and supplies	3391	10	D	D
Other miscellaneous manufacturing	339 minus 3391	0	0	D
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	0	0	0
Small manufacturing companies ^a	31–33 (with fewer than 50 employees)	151	128	69
Nonmanufacturing	21–23, 42, 44–81	—	—	5,479
Mining, extraction, and support activities	21	D	D	D
Utilities	22	D	D	17
Construction	23	1	D	2
Trade	42, 44, 45	D	77	95
Transportation and warehousing	48, 49	D	0	0
Information	51	404	556	497
Publishing	511	47	67	49
Newspaper, periodical, book, and database	5111	0	0	0
Software	5112	47	67	49
Broadcasting and telecommunications	513	D	D	D
Radio and television broadcasting	5131	D	D	D
Telecommunications	5133	D	D	D
Other broadcasting and telecommunications	513 (minus 5131, 5133)	0	0	13

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-33.

Federal funds for industrial R&D performance, by industry and size of company: 1997–99
 (Millions of current dollars)

Industry ^a	NAICS code	1997 ^b	1998 ^b	1999
Other information	51 minus (511, 513)	D	D	D
Finance, insurance, and real estate	52, 53	D	D	D
Professional, scientific, and technical services	54	3,620	4,728	4,615
Architectural, engineering, and related services	5413	1,058	1,775	1,177
Computer systems design and related services	5415	D	D	D
Scientific R&D services	5417	2,334	2,615	3,057
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	D	D	D
Management of companies and enterprises	55	0	0	D
Health care services	621–23	4	32	10
Other nonmanufacturing	56, 61, 624, 71, 72, 81	42	29	D
Small nonmanufacturing companies ^a	21–23, 42, 44–81 (with fewer than 15 employees)	D	522	227
Number of employees			Distribution by size of company	
Total		23,928	24,164	22,535
5 to 25		468	638	611
25 to 49		283	466	368
50 to 99		431	581	603
100 to 249		572	1,186	674
250 to 499		456	565	485
500 to 999		376	363	591
1,000 to 4,999		540	620	896
5,000 to 9,999		612	536	2,194
10,000 to 24,999		913	955	397
25,000 or more		19,277	18,253	15,717

NAICS = North American Industry Classification System; — = Data not tabulated under NAICS code; D = Data have been withheld to avoid disclosing operations of individual companies

^aThe frame from which the statistical sample was selected was divided into two partitions based on total company employment. In the manufacturing sector, companies with 50 or more employees were included in the large company partition. In the nonmanufacturing sector, companies with 15 or more employees were included in the large company partition. Companies in the respective sectors with employment below these values but with at least five employees were included in the small company partition. The purpose of partitioning the sample this way was to reduce the variability in industry estimates largely attributed to the random year-to-year selection of small companies by industry and the high sampling weights that sometimes were assigned to them. Because of this, detailed industry statistics were possible only from the large company partition. Statistics from the small company partition are shown separately and are included in manufacturing, nonmanufacturing, and all industries totals.

^bThe totals for all industries are identical to corresponding totals previously published using the Standard Industrial Classification (SIC) system. Detail published using NAICS may not add to totals.

NOTES: Starting with the 1999 survey, estimates are based on NAICS. In prior years, estimates were based on the SIC system. For this table, companies in the 1997 and 1998 surveys were assigned NAICS industry codes based on their SIC industry codes. Consequently, the estimates for 1997 and 1998 in this table are not representative of the NAICS categories of industries in those years. They are included for comparison purposes only. R&D in this table is the industrial R&D performed within company facilities funded by the Federal Government. Excluded from this table are R&D not performed within the company (e.g., R&D contracted out to other organizations) and R&D not performed in the United States (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Research and Development in Industry: 1999*, Early Release Tables (Arlington, VA, 2001)

Appendix table 4-34.

Discrepancy between Federal R&D support as reported by performers and Federal agencies: 1980–2000
(Billions of dollars)

Year	All performers			Industrial performers ^a		
	Performer reported	Agency reported	Difference	Performer reported	Agency reported	Difference
1980	30.0	29.8	0.2	12.8	13.0	-0.2
1981	33.7	33.1	0.6	15.0	14.9	0.1
1982	37.2	36.4	0.8	17.1	17.2	-0.1
1983	41.6	38.7	2.9	19.1	17.0	2.1
1984	46.6	42.2	4.4	21.7	18.6	3.1
1985	52.8	48.4	4.4	25.3	21.7	3.6
1986	54.7	51.4	3.3	26.0	24.2	1.8
1987	58.6	55.3	3.3	28.8	26.8	2.0
1988	60.2	56.8	3.4	28.2	26.7	1.5
1989	60.5	61.4	-0.9	26.4	28.6	-2.2
1990	61.7	63.6	-1.9	25.8	29.4	-3.6
1991	60.8	61.3	-0.5	24.1	26.4	-2.3
1992	60.9	65.6	-4.7	22.4	29.7	-7.4
1993	60.5	67.3	-6.8	20.8	30.2	-9.4
1994	60.8	67.2	-6.5	20.3	30.5	-10.2
1995	63.0	68.2	-5.2	21.2	30.2	-9.1
1996	63.4	67.7	-4.3	21.4	30.4	-9.0
1997	64.8	69.8	-5.1	21.8	31.4	-9.6
1998	66.8	71.9	-5.1	22.1	31.8	-9.8
1999	67.7	75.3	-7.6	20.2	31.9	-11.7
2000	69.6	79.5	-9.8	19.6	32.8	-13.2

^aExcludes industry-administered federally funded research and development centers.

NOTES: Performer-reported data are expenditures, and agency-reported data are obligations. Data for 2000 are preliminary. The differences in the two series are derived from unrounded data, not shown in the table.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources: 2000 Data Update*, NSF 01-309 (Arlington, VA, March 2001), Available at <<http://www.nsf.gov/sbe/srs/nsf01309/start.htm>>; and NSF/SRS, *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2000*, Detailed Statistical Tables, NSF 01-328 (Arlington, VA, June 2001).

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Appendix table 4-35.

Indicators of Federal technology transfer activities, by Federal agency: fiscal years 1987–2000

Agency and activity	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
New inventions disclosed, patent applications filed, and patents issued														
Total, all agencies														
Inventions disclosed	2,662	3,047	3,168	3,772	4,213	3,901	3,538	3,753	4,016	4,153	3,842	3,503	4,851	4,209
Patent applications	848	1,131	1,466	1,673	1,900	1,817	1,838	1,661	1,740	1,666	1,789	1,844	2,258	2,159
Patents issued	—	—	—	—	—	—	—	—	—	—	—	1,243	1,446	1,480
Agriculture														
Inventions disclosed	83	144	127	158	127	83	110	111	133	129	260	208	162	109
Patent applications	44	50	71	76	110	70	68	40	80	91	56	64	84	78
Patents issued	—	—	—	—	—	—	—	—	—	—	45	75	74	64
Commerce														
Inventions disclosed	43	31	49	46	30	55	66	51	65	71	58	40	35	32
Patent applications	8	15	28	28	18	53	43	41	35	60	49	66	42	18
Patents issued	—	—	—	—	—	—	—	—	—	—	—	23	19	14
Defense														
Inventions disclosed	953	1,147	1,153	1,383	1,524	1,283	1,189	1,172	1,168	1,115	1,150	1,028	1,060	991
Patent applications	343	447	616	807	919	850	835	732	759	716	735	755	703	774
Patents issued	—	—	—	—	—	—	—	—	—	—	—	554	579	547
Air Force														
Inventions disclosed ...	83	90	169	160	102	160	140	140	200	190	138	121	88	174
Patent applications	49	47	122	145	178	155	161	122	148	108	100	116	87	108
Patents issued	—	—	—	—	—	—	—	—	—	—	88	89	85	80
Army														
Inventions disclosed ...	248	348	276	376	463	438	413	388	363	338	312	264	306	250
Patent applications	177	203	216	236	274	260	246	232	218	204	192	219	208	243
Patents issued	—	—	—	—	—	—	—	—	—	—	169	168	165	152
Navy														
Inventions disclosed ...	622	709	708	847	959	685	636	644	605	587	700	643	666	567
Patent applications	117	197	278	426	467	435	428	378	393	404	443	420	408	423
Patents issued	—	—	—	—	—	—	—	—	—	—	297	322	297	321
Energy														
Inventions disclosed	857	1,003	1,053	1,335	1,666	1,698	1,443	1,588	1,758	1,886	1,500	1,313	1,474	1,371
Patent applications	252	336	382	366	397	432	497	543	571	564	705	751	850	788
Patents issued	—	—	—	—	—	—	—	—	—	—	384	512	525	515
EPA														
Inventions disclosed	0	0	0	12	20	9	22	19	15	20	9	14	5	11
Patent applications	4	5	5	6	8	12	15	15	24	18	13	11	15	10
Patents issued	—	—	—	—	—	—	—	—	—	—	12	1	8	6
HHS														
Inventions disclosed	194	226	209	215	215	311	282	307	307	305	268	287	328	375
Patent applications	98	145	225	239	261	224	193	171	166	147	148	132	241	263
Patents issued	—	—	—	—	—	—	—	—	—	—	152	171	180	132
Interior														
Inventions disclosed	3	6	3	26	26	1	2	2	2	2	5	5	8	16
Patent applications	5	4	11	15	21	1	2	2	2	2	2	5	3	5
Patents issued	—	—	—	—	—	—	—	—	—	—	1	3	1	4
NASA														
Inventions disclosed	496	462	532	538	570	416	384	457	532	550	550	554	1,731	1,219
Patent applications	94	129	125	127	165	175	185	116	101	66	79	55	283	186
Patents issued	—	—	—	—	—	—	—	—	—	—	72	85	119	194
Transportation														
Inventions disclosed	0	0	0	1	2	1	1	1	0	4	2	4	0	0
Patent applications	0	0	0	1	1	0	0	1	2	2	1	3	0	2
Patents issued	—	—	—	—	—	—	—	—	—	—	0	1	0	3
Veterans Affairs														
Inventions disclosed	33	28	42	58	33	44	39	45	36	71	40	50	48	85
Patent applications	NA	NA	3	8	NA	0	0	0	0	0	1	2	37	35
Patents issued	—	—	—	—	—	—	—	—	—	—	NA	NA	0	1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-35.

Indicators of Federal technology transfer activities, by Federal agency: fiscal years 1987–2000

Agency and activity	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Licenses of patented inventions														
Total, all agencies														
Active	—	—	—	—	—	—	—	—	—	—	—	—	2,735	3,007
New	128	129	150	164	206	239	260	337	408	462	502	510	604	514
Agriculture														
Active	—	—	—	—	—	—	—	—	—	—	—	—	218	225
New	30	24	23	33	29	31	28	9	21	26	22	23	29	24
Commerce														
Active	—	—	—	—	—	—	—	—	—	—	—	—	40	39
New	0	0	1	0	2	5	3	3	4	10	11	17	7	3
Defense														
Active	—	—	—	—	—	—	—	—	—	—	—	—	177	189
New	10	10	14	15	25	19	20	28	34	41	34	34	61	67
Air Force														
Active	—	—	—	—	—	—	—	—	—	—	—	—	46	40
New	1	2	2	4	1	1	3	3	4	6	7	5	40	40
Army														
Active	—	—	—	—	—	—	—	—	—	—	—	—	88	98
New	3	6	2	3	9	7	3	12	12	19	14	13	8	12
Navy														
Active	—	—	—	—	—	—	—	—	—	—	—	—	43	51
New	6	2	10	8	15	11	14	13	18	16	13	16	13	15
Energy														
Active	—	—	—	—	—	—	—	—	—	—	—	—	981	1,094
New	37	43	57	62	75	81	96	118	140	154	175	162	202	169
EPA														
Active	—	—	—	—	—	—	—	—	—	—	—	—	17	18
New	0	0	0	1	2	2	2	9	1	2	1	0	2	3
HHS														
Active	—	—	—	—	—	—	—	—	—	—	—	—	1,041	1,222
New	35	42	48	47	69	96	99	151	176	193	208	215	208	192
Interior														
Active	—	—	—	—	—	—	—	—	—	—	—	—	12	6
New	3	3	0	0	0	NA	NA	8	3	NA	0	0	0	2
NASA														
Active	—	—	—	—	—	—	—	—	—	—	—	—	249	214
New	13	7	7	6	4	5	12	11	29	36	51	58	48	51
Transportation														
Active	—	—	—	—	—	—	—	—	—	—	—	—	0	0
New	0	0	0	0	0	NA	NA	NA	NA	NA	0	1	0	0
Veterans Affairs														
Active	—	—	—	—	—	—	—	—	—	—	—	—	NA	NA
New	0	0	0	0	0	NA	47	3						
Income from licenses of patented inventions (thousands of current dollars)														
Total, all agencies	5,875	6,346	7,304	9,413	18,163	14,070	18,570	26,641	27,922	36,969	50,234	57,563	60,174	69,498
Agriculture	133	120	420	559	836	1,044	1,483	1,450	1,635	2,091	2,300	2,400	2,377	2,555
Commerce	34	81	62	52	26	0	0	0	0	196	241	NA	NA	NA
Defense	44	49	211	239	286	331	567	1,081	646	836	924	1,560	2,005	2,213
Air Force	27	31	27	44	43	47	90	59	102	142	190	212	792	648
Army	10	5	41	58	113	78	77	110	100	335	256	430	536	866
Navy	7	13	143	137	130	206	400	912	444	359	478	918	677	699
Energy	346	545	1,499	2,560	3,193	2,369	2,703	2,915	3,455	4,122	8,009	10,536	10,199	12,710
EPA	0	0	0	3	74	60	75	230	110	300	60	100	NA	NA
HHS	4,245	5,434	4,804	5,839	13,384	10,133	13,584	18,654	19,727	27,277	35,692	39,500	42,599	48,592
Interior	1,000	38	61	41	58	0	0	2,000	2,000	2,000	2,000	2,000	1,640	850
NASA	73	79	84	113	292	133	158	311	349	343	1,053	1,226	1,355	1,557
Transportation	0	0	163	7	14	NA	NA	NA	NA	NA	0	0	0	0
Veterans Affairs	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	NA	1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-35.

Indicators of Federal technology transfer activities, by Federal agency: fiscal years 1987–2000

Agency and activity	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
CRADA projects														
Total, all agencies														
Active	34	98	271	460	731	1,078	1,628	2,471	3,121	3,688	3,239	3,201	2,980	2,924
New	—	—	—	—	—	—	—	—	—	—	937	928	947	793
Agriculture														
Active	9	51	98	128	177	172	172	208	229	244	273	288	298	257
New	—	—	—	—	—	—	—	—	—	—	93	102	101	69
Commerce														
Active	0	9	44	82	115	177	292	368	407	406	377	337	261	208
New	—	—	—	—	—	—	—	—	—	—	90	77	62	40
Defense														
Active	3	10	36	113	193	277	365	563	845	1,086	1,360	1,424	1,350	1,364
New	—	—	—	—	—	—	—	—	—	—	408	399	449	425
Air Force														
Active	0	2	7	13	26	6	25	32	66	223	251	246	327	339
New	—	—	—	—	—	—	—	—	—	—	72	55	88	71
Army														
Active	3	8	27	80	115	212	260	389	549	531	740	817	724	769
New	—	—	—	—	—	—	—	—	—	—	189	210	219	233
Navy														
Active	0	0	2	20	52	59	80	142	230	332	369	361	299	256
New	—	—	—	—	—	—	—	—	—	—	147	134	142	121
Energy														
Active	0	0	0	1	43	250	582	1,094	1,392	1,677	963	868	715	687
New	—	—	—	—	—	—	—	—	—	—	274	266	240	151
EPA														
Active	0	0	2	11	31	30	28	35	30	35	34	37	38	44
New	—	—	—	—	—	—	—	—	—	—	11	12	13	10
HHS^a														
Active	22	28	89	110	144	146	149	147	152	158	161	163	237	244
New	—	—	—	—	—	—	—	—	—	—	32	43	65	50
Interior														
Active	0	0	1	12	11	1	3	9	15	22	23	30	30	40
New	—	—	—	—	—	—	—	—	—	—	9	7	10	8
NASA^b														
Active	0	0	0	0	0	0	0	0	0	0	0	0	1	1
New	—	—	—	—	—	—	—	—	—	—	0	0	1	0
Transportation														
Active	0	0	0	1	9	17	30	38	37	43	36	39	49	77
New	—	—	—	—	—	—	—	—	—	—	14	13	5	38
Veterans Affairs														
Active	0	0	1	2	8	8	7	9	14	17	12	15	1	2
New	—	—	—	—	—	—	—	—	—	—	6	9	1	2

CRADA = Cooperative Research and Development Agreement; EPA = Environmental Protection Agency; HHS = Department of Health and Human Services; NASA = National Aeronautics and Space Administration; NA = not available; — = data not collected

^aExcludes "material transfer" CRADAs from the National Institutes of Health (NIH). NIH began using these CRADAs in 1996 to transfer research samples into its laboratories.

^bBefore 1999, NASA performed all of its technology transfer activities under the provisions of the 1958 Space Act.

NOTES: Data are reported to the Department of Commerce pursuant to the Federal Technology Transfer Act of 1986. As such, the first data year in the series is fiscal year 1987. Data on new CRADAs and patents issued by agencies are available only from fiscal year 1997; active licenses only from 1999.

SOURCE: Department of Commerce, Technology Administration (unpublished tabulations).

Appendix table 4-36.

Small Business Innovation Research awards, by award type and agency: fiscal years 1983–99
 (Millions of current dollars)

Award type and agency	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Cumulative 1983–99
Total^a	45	108	199	298	351	389	432	461	483	508	698	718	835	916	1,107	1,067	1,097	9,710
By type																		
Phase I awards	45	48	69	99	110	102	108	118	128	128	154	220	232	229	278	262	300	2,630
Phase II awards	0	60	130	199	241	285	322	342	336	371	491	474	602	646	789	804	797	6,889
By agency																		
Defense	20	45	78	151	194	208	233	241	241	242	385	354	414	479	569	540	514	4,908
Health and Human Services	7	23	45	57	67	73	79	84	93	102	126	133	181	189	252	267	314	2,092
National Aeronautics and Space Administration	5	13	29	36	32	47	52	62	69	79	86	116	118	114	121	96	89	1,164
Energy	5	16	26	29	28	30	33	39	39	43	50	53	70	62	75	76	81	755
National Science Foundation	5	7	10	15	17	17	19	20	22	23	29	34	42	41	54	53	60	468
Agriculture	1	2	3	4	4	4	4	4	5	6	7	7	9	9	10	13	13	105
Transportation	—	2	3	4	3	3	4	4	6	3	4	7	10	7	8	6	6	80
Environmental Protection Agency	—	1	2	3	3	3	3	3	4	4	5	5	7	5	6	5	5	64
Education	—	1	1	2	2	2	2	2	3	2	3	3	3	3	4	5	5	43
Nuclear Regulatory Commission	—	1	1	1	1	1	1	1	0	1	2	1	2	0	0	0	0	13
Commerce	0	0	0	1	2	1	1	1	1	2	2	4	8	6	7	7	7	50
Interior	—	1	—	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

— = Less than \$500,000

^aData are agency obligations. Details by award type and agency do not necessarily contain subsequent year revisions and may not add to totals.

SOURCE: U.S. Small Business Administration, Small Business Innovation Research Program Annual Reports (Washington, DC).

Science & Engineering Indicators – 2002

Appendix table 4-37.

Small Business Technology Transfer Program awards, by award type and agency: fiscal years 1994–99
 (Millions of current dollars)

Award type and agency	1994	1995	1996	1997	1998	1999	Cumulative 1994–99
Total^a	19	33	64	69	65	65	316
By type							
Phase I awards	19	23	23	24	20	24	133
Phase II awards	0	10	42	45	45	41	183
By agency							
Defense	9	15	29	37	33	31	154
National Science Foundation	1	2	3	3	3	3	15
Energy	2	5	5	4	5	5	26
National Aeronautics and Space Administration	2	3	9	12	6	6	38
Health and Human Services	5	9	18	13	17	20	82

^aData are agency obligations. Details by award type and agency do not necessarily contain subsequent year revisions and may not add to totals.

SOURCE: U.S. Small Business Administration, Small Business Technology Transfer Program Annual Reports, Washington D.C.

Appendix table 4-38.

Advanced Technology Program awards, number of participants, and funding: fiscal years 1990–2000

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Number of awards	11	28	21	29	88	103	8	64	79	37	54	522
Single applicants	6	18	18	24	50	62	6	49	52	26	39	350
Joint ventures	5	10	3	5	38	41	2	15	27	11	15	172
Number of participants ^a	35	83	32	50	211	318	12	101	168	57	95	1,162
Millions of current dollars												
Award funding	98	202	97	118	640	827	37	304	460	212	274	3,269
Advanced Technology Program share	46	93	48	60	309	414	19	162	235	110	144	1,640
To joint ventures	38	65	19	19	216	304	9	75	143	61	70	1,019
To single applicants	8	28	29	41	93	110	10	87	92	49	74	621
Industry share	52	109	49	58	331	413	18	142	225	102	130	1,629
From joint ventures	45	83	19	20	233	340	10	81	157	64	74	1,126
From single applicants	7	26	30	38	98	73	8	61	68	38	56	503

^aParticipants include single applicants, joint venture leaders, and joint venture members; exclude subcontractors and informal collaborators.

NOTE: For multiyear awards, total award funding is attributed to the year the award was made.

SOURCE: Advanced Technology Program, National Institute of Standards and Technology, U.S. Department of Commerce, unpublished tabulations.

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Appendix table 4-39.

**International strategic technology alliances, by technology and selected region/country: 1980–2000
(Counts)**

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total^a																					
Total	212	201	272	260	346	437	491	488	545	584	437	372	507	557	611	812	713	647	661	586	574
Information technology	49	60	96	107	157	164	189	177	200	197	219	203	237	221	253	338	298	233	276	225	184
Biotechnology	31	38	54	42	65	113	103	112	100	71	50	40	101	134	165	164	177	185	147	191	199
New materials	9	23	27	35	28	58	87	65	61	47	35	21	38	59	33	46	36	30	41	23	25
Aerospace and defense	22	8	11	11	30	14	27	25	26	45	54	41	56	37	37	52	45	38	38	11	13
Automotive	19	7	9	8	8	20	26	22	45	56	12	3	4	15	26	32	37	46	35	38	53
Chemicals (nonbiotechnology)	40	26	30	29	25	32	19	38	58	84	47	40	39	68	52	60	28	60	73	35	39
Other	42	39	45	28	33	36	40	49	55	84	20	24	32	23	45	120	92	55	51	63	61
United States																					
Total	141	126	200	177	234	237	294	320	368	360	314	288	394	444	496	643	584	528	538	493	465
Information technology	31	39	76	76	105	88	118	135	145	139	174	163	194	196	229	296	262	195	240	192	144
Biotechnology	24	28	45	27	51	68	77	78	67	50	32	36	83	116	133	131	147	167	124	170	168
New materials	5	14	17	22	15	22	39	34	38	28	27	15	29	40	28	34	28	22	26	18	21
Aerospace and defense	15	5	8	6	18	7	10	14	17	25	36	25	36	21	17	29	29	20	29	10	9
Automotive	9	2	4	6	4	11	14	16	33	34	8	2	1	10	17	17	26	30	20	26	41
Chemicals (nonbiotechnology)	27	16	18	17	18	19	10	17	34	47	26	30	26	46	36	44	17	51	55	25	31
Other	30	22	32	23	23	22	26	26	34	37	11	17	25	15	36	92	75	43	44	52	51
Europe																					
Total	104	95	127	111	165	239	239	234	266	320	204	165	235	236	260	334	285	272	318	210	265
Information technology	20	28	48	34	73	96	103	82	91	96	81	72	93	68	60	86	76	85	97	61	82
Biotechnology	11	14	15	20	24	59	35	51	50	37	28	21	59	59	93	90	101	71	79	70	87
New materials	8	13	15	19	13	24	32	22	23	26	19	8	15	34	10	20	11	15	26	7	8
Aerospace and defense	13	4	7	8	19	10	18	15	15	30	31	26	33	24	29	33	23	27	25	5	5
Automotive	12	5	6	4	6	10	13	9	18	23	4	0	0	4	14	18	17	22	20	26	26
Chemicals (nonbiotechnology)	17	13	16	13	11	16	13	23	32	45	31	25	19	33	31	38	22	26	49	21	26
Other	23	18	20	13	19	24	25	32	37	63	10	13	16	14	23	49	35	26	22	20	31
Japan																					
Total	55	68	89	97	100	137	160	130	113	128	85	79	79	79	84	112	105	63	82	76	66
Information technology	15	18	35	44	55	40	53	31	33	35	46	50	40	41	46	51	47	28	38	41	33
Biotechnology	7	11	17	11	11	31	30	26	11	12	9	2	8	15	14	15	21	15	10	14	9
New materials	0	6	8	14	14	35	45	34	22	12	9	6	10	6	5	11	4	3	12	6	6
Aerospace and defense	6	3	0	3	1	0	4	1	0	4	3	6	2	0	0	3	2	1	1	1	3
Automotive	5	3	3	3	2	10	13	11	18	28	2	2	3	7	6	8	7	2	7	5	8
Chemicals (nonbiotechnology)	12	9	12	14	8	14	5	18	18	25	12	8	9	9	8	6	6	8	4	3	2
Other	10	18	14	8	9	7	10	9	11	12	4	5	7	1	5	18	18	6	10	6	5
Across regions ^b																					
Total	110	114	171	138	177	214	232	242	280	341	211	178	247	274	286	356	335	286	322	249	314
Information technology	18	29	71	53	85	70	92	81	91	103	100	88	104	101	99	129	124	102	121	93	111
Biotechnology	14	19	26	16	24	52	41	50	37	36	28	22	59	66	87	82	108	81	71	81	85
New materials	4	15	16	20	15	26	34	30	32	23	24	9	19	31	12	24	11	13	26	10	17
Aerospace and defense	12	4	5	6	9	6	7	6	8	20	17	21	28	27	20	25	17	18	23	5	6
Automotive	10	3	5	6	5	14	17	17	34	43	3	1	0	7	14	15	16	16	17	21	33
Chemicals (nonbiotechnology)	26	22	22	19	17	24	11	29	45	62	29	26	21	32	31	35	18	30	38	20	23
Other	26	22	26	18	22	22	30	29	33	54	10	11	16	10	23	46	41	26	26	19	39

See notes, if any, and SOURCE at end of table.

Appendix table 4-39.

International strategic technology alliances, by technology and selected region/country: 1980–2000

(Counts)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
United States-Europe																					
Total	43	33	68	46	74	85	107	116	116	120	93	91	130	135	160	187	178	160	208	141	171
Information technology	7	11	31	13	30	28	43	48	41	41	42	37	54	47	45	51	47	52	68	41	52
Biotechnology	5	6	9	7	14	22	24	28	21	16	11	18	41	42	62	60	73	53	56	52	57
New materials	4	5	6	8	4	7	13	10	10	9	11	3	6	16	7	12	6	7	13	6	5
Aerospace and defense	6	2	4	4	8	3	4	5	6	10	15	11	14	8	9	10	8	9	16	4	2
Automotive	3	0	1	2	3	6	5	5	9	7	1	0	0	2	7	7	9	7	7	14	15
Chemicals (nonbiotechnology)	5	4	8	4	6	7	4	5	13	15	11	15	6	14	16	22	11	17	31	11	18
Other	13	5	9	8	9	12	14	15	16	22	2	7	9	6	14	25	24	15	17	13	22
United States-Japan																					
Total	33	35	60	61	58	57	60	56	62	74	48	50	47	46	45	60	57	44	42	39	33
Information technology	6	7	26	28	35	20	25	20	19	25	32	34	26	30	29	34	31	18	21	22	15
Biotechnology	6	8	12	7	7	16	14	11	6	6	4	1	5	10	7	6	13	14	6	9	7
New materials	0	3	4	10	5	9	10	11	9	8	4	3	8	1	3	4	0	2	3	2	4
Aerospace and defense	5	1	0	1	0	0	1	0	0	3	1	5	0	0	0	2	1	0	1	1	2
Automotive	3	1	2	2	1	2	5	7	12	17	1	1	0	2	1	2	3	0	3	1	4
Chemicals (nonbiotechnology)	10	6	6	8	5	7	2	7	9	12	4	4	2	2	1	4	1	6	2	2	0
Other	3	9	10	5	5	3	3	0	7	3	2	2	6	1	4	8	8	4	6	2	1
United States-others																					
Total	14	14	17	7	11	15	13	17	36	35	21	10	27	37	30	43	45	32	20	41	58
Information technology	0	1	5	3	2	5	2	5	11	10	10	4	9	10	12	22	22	15	12	20	22
Biotechnology	3	2	1	0	2	3	0	3	4	5	4	1	5	7	6	6	7	7	2	14	12
New materials	0	4	3	0	1	1	3	2	6	1	3	1	1	5	2	1	4	0	0	1	4
Aerospace and defense	0	0	1	0	1	0	0	0	0	3	1	2	8	7	3	5	6	2	4	0	1
Automotive	2	0	1	1	0	2	1	1	6	3	0	0	0	1	0	1	2	5	2	2	8
Chemicals (nonbiotechnology)	6	5	3	1	1	3	1	2	7	9	1	2	4	6	6	2	1	1	0	1	1
Other	3	2	3	2	4	1	6	4	2	4	2	0	0	1	1	6	3	2	0	3	10
Europe-Japan																					
Total	12	20	16	18	21	34	35	24	24	30	25	19	24	21	24	30	26	12	27	13	18
Information technology	4	7	6	6	11	12	17	3	9	7	8	11	10	7	8	10	9	5	10	6	8
Biotechnology	0	1	2	2	0	7	1	4	1	6	4	0	3	4	6	6	6	1	4	2	1
New materials	0	2	3	2	5	7	6	4	3	2	5	2	2	4	0	3	1	1	7	0	1
Aerospace and defense	1	1	0	1	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0
Automotive	1	2	1	1	0	3	4	2	3	5	0	0	0	2	3	2	1	1	2	4	3
Chemicals (nonbiotechnology)	1	2	2	3	1	3	3	8	4	6	7	4	7	4	6	2	5	2	2	1	2
Other	5	5	2	3	4	2	4	3	4	3	1	2	1	0	1	6	4	1	2	0	3
Europe-others																					
Total	5	10	7	6	10	20	12	21	36	61	23	5	17	31	21	28	20	34	19	11	25
Information technology	0	2	2	3	6	5	4	5	10	18	7	1	4	5	1	8	11	9	8	2	8
Biotechnology	0	2	1	0	0	3	1	1	4	3	5	1	5	3	6	2	7	6	3	3	8
New materials	0	1	0	0	0	2	1	3	4	3	1	0	2	5	0	3	0	3	2	0	2
Aerospace and defense	0	0	0	0	0	3	2	1	2	3	0	2	4	12	8	7	2	6	2	0	1
Automotive	0	0	0	0	1	0	1	0	3	5	1	0	0	0	1	2	0	2	1	0	2
Chemicals (nonbiotechnology)	3	4	2	3	3	3	1	5	9	13	6	1	2	4	2	5	0	4	3	5	2
Other	2	1	2	0	0	4	2	6	4	16	3	0	0	2	3	1	0	4	0	1	2

See notes, if any, and SOURCE at end of table.

Appendix table 4-39.

International strategic technology alliances, by technology and selected region/country: 1980–2000

(Counts)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Japan-others																					
Total	3	2	3	0	3	3	5	8	6	21	1	3	2	4	6	8	9	4	6	4	9
Information technology	1	1	1	0	1	0	1	0	1	2	1	1	1	2	4	4	4	3	2	2	6
Biotechnology	0	0	1	0	1	1	1	3	1	0	0	1	0	0	0	2	2	0	0	1	0
New materials	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	1	1
Aerospace and defense	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Automotive	1	0	0	0	0	1	1	2	1	6	0	0	0	0	2	1	1	1	2	0	1
Chemicals (nonbiotechnology)	1	1	1	0	1	1	0	2	3	7	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	1	1	0	6	0	0	0	0	0	0	2	0	1	0	1
Within regions ^c																					
Total	102	87	101	122	169	223	259	246	265	243	226	194	260	283	325	456	378	361	339	337	260
Information technology	31	31	25	54	72	94	97	96	109	94	119	115	133	120	154	209	174	131	155	132	73
Biotechnology	17	19	28	26	41	61	62	63	35	22	18	42	68	78	82	69	104	76	110	114	
New materials	5	8	11	15	13	32	53	35	29	24	11	12	19	28	21	22	25	17	15	13	8
Aerospace and defense	10	4	6	5	21	8	20	19	18	25	37	20	28	10	17	27	28	20	15	6	7
Automotive	9	4	4	2	3	6	9	5	11	13	9	2	4	8	12	17	21	30	18	17	20
Chemicals (nonbiotechnology)	14	4	8	10	8	8	8	9	13	22	18	14	18	36	21	25	10	30	35	15	16
Other	16	17	19	10	11	14	10	20	22	30	10	13	16	13	22	74	51	29	25	44	22
United States intraregion																					
Total	51	44	55	63	91	80	114	131	154	131	152	137	190	226	261	353	304	292	268	272	203
Information technology	18	20	14	32	38	35	48	62	74	63	90	88	105	109	143	189	162	110	139	109	55
Biotechnology	10	12	23	13	28	27	39	36	36	23	13	16	32	57	58	59	54	93	60	95	92
New materials	1	2	4	4	5	5	13	11	13	10	9	8	14	18	16	17	18	13	10	9	8
Aerospace and defense	4	2	3	1	9	4	5	9	11	9	19	7	14	6	5	12	14	9	8	5	4
Automotive	1	1	0	1	0	1	3	3	6	7	6	1	1	5	9	7	12	18	8	9	14
Chemicals (nonbiotechnology)	6	1	1	4	6	2	3	3	5	11	10	9	14	24	13	16	4	27	22	11	12
Other	11	6	10	8	5	6	3	7	9	8	5	8	10	7	17	53	40	22	21	34	18
Europe intraregion																					
Total	44	32	36	41	60	100	85	73	90	109	63	50	64	49	55	89	61	66	64	45	51
Information technology	9	8	9	12	26	51	39	26	31	30	24	23	25	9	6	17	9	19	11	12	14
Biotechnology	6	5	3	11	10	27	9	18	24	12	8	2	10	10	19	22	15	11	16	13	21
New materials	4	5	6	9	4	8	12	5	6	12	2	3	5	9	3	2	4	4	1	0	
Aerospace and defense	6	1	3	3	11	4	12	9	7	16	16	13	14	4	12	15	13	11	7	1	2
Automotive	8	3	4	1	2	1	3	2	3	6	2	0	0	0	3	7	7	12	10	8	6
Chemicals (nonbiotechnology)	8	3	4	3	1	3	5	5	6	11	7	5	4	11	7	9	6	3	13	4	4
Other	3	7	7	2	6	6	5	8	13	22	4	4	6	6	5	17	7	6	3	6	4
Japan intraregion																					
Total	7	11	10	18	18	43	60	42	21	3	11	7	6	8	9	14	13	3	7	20	6
Information technology	4	3	2	10	8	8	10	8	4	1	5	4	3	2	5	3	3	2	5	11	4
Biotechnology	1	2	2	2	3	7	14	8	3	0	1	0	0	1	1	1	0	0	0	2	1
New materials	0	1	1	2	4	19	28	19	10	2	0	1	0	1	2	3	3	0	1	3	0
Aerospace and defense	0	1	0	1	1	0	3	1	0	0	2	0	0	0	0	0	1	0	0	0	1
Automotive	0	0	0	0	1	4	3	0	2	0	1	1	3	3	0	3	2	0	0	0	0
Chemicals (nonbiotechnology)	0	0	3	3	1	3	0	1	2	0	1	0	0	1	1	0	0	0	0	0	0
Other	2	4	2	0	0	2	2	5	0	0	1	1	0	0	0	4	4	1	1	4	0

See notes, if any, and SOURCE at end of table.

Appendix table 4-39.

International strategic technology alliances, by technology and selected region/country: 1980–2000

(Counts)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Data addenda^d																					
United States interregion																					
Total	90	82	145	114	143	157	180	189	214	229	162	151	204	218	235	290	280	236	270	221	262
Information technology	13	19	62	44	67	53	70	73	71	76	84	75	89	87	86	107	100	85	101	83	89
Biotechnology	14	16	22	14	23	41	38	42	31	27	19	20	51	59	75	72	93	74	64	75	76
New materials	4	12	13	18	10	17	26	23	25	18	18	7	15	22	12	17	10	9	16	9	13
Aerospace and defense	11	3	5	5	9	3	5	5	6	16	17	18	22	15	12	17	15	11	21	5	5
Automotive	8	1	4	5	4	10	11	13	27	27	2	1	0	5	8	10	14	12	12	17	27
Chemicals (nonbiotechnology)	21	15	17	13	12	17	7	14	29	36	16	21	12	22	23	28	13	24	33	14	19
Other	19	16	22	15	18	16	23	19	25	29	6	9	15	8	19	39	35	21	23	18	33
Europe interregion																					
Total	60	63	91	70	105	139	154	161	176	211	141	115	171	187	205	245	224	206	254	165	214
Information technology	11	20	39	22	47	45	64	56	60	66	57	49	68	59	54	69	67	66	86	49	68
Biotechnology	5	9	12	9	14	32	26	33	26	25	20	19	49	49	74	68	86	60	63	57	66
New materials	4	8	9	10	9	16	20	17	17	14	17	5	10	25	7	18	7	11	22	6	8
Aerospace and defense	7	3	4	5	8	6	6	6	8	14	15	13	19	20	17	18	10	16	18	4	3
Automotive	4	2	2	3	4	9	10	7	15	17	2	0	0	4	11	11	10	10	10	18	20
Chemicals (nonbiotechnology)	9	10	12	10	10	13	8	18	26	34	24	20	15	22	24	29	16	23	36	17	22
Other	20	11	13	11	13	18	20	24	24	41	6	9	10	8	18	32	28	20	19	14	27
Japan interregion																					
Total	48	57	79	79	82	94	100	88	92	125	74	72	73	71	75	98	92	60	75	56	60
Information technology	11	15	33	34	47	32	43	23	29	34	41	46	37	39	41	48	44	26	33	30	29
Biotechnology	6	9	15	9	8	24	16	18	8	12	8	2	8	14	13	14	21	15	10	12	8
New materials	0	5	7	12	10	16	17	15	12	10	9	5	10	5	3	8	1	3	11	3	6
Aerospace and defense	6	2	0	2	0	0	1	0	0	4	1	6	2	0	0	3	1	1	1	1	2
Automotive	5	3	3	3	1	6	10	11	16	28	1	1	0	4	6	5	5	2	7	5	8
Chemicals (nonbiotechnology)	12	9	9	11	7	11	5	17	16	25	11	8	9	8	7	6	6	8	4	3	2
Other	8	14	12	8	9	5	8	4	11	12	3	4	7	1	5	14	14	5	9	2	5

^aThe counts for total international strategic technology alliances are the sum of 'across regions' and 'within regions' for the United States, Europe, and Japan.^bTotals for alliances 'across regions' include all interregional alliances, which are alliances formed by companies from different countries/regions (U.S., Europe, Japan).^cTotals for alliances 'within regions' include all intraregional alliances, which are alliances formed by companies from the same country (U.S., Japan) or region (Europe).^dCounts of these interregional strategic technology alliances are included in the totals for across regions listed above. For example, the United States interregion totals are the sum of United States-Europe, United States-Japan, and United States-others.

NOTE: Data are annual counts of new international strategic technology alliances.

SOURCE: J. Hagedoorn, Cooperative Agreements and Technology Indicators (CATI) database, Maastricht Economic Research Institute on Innovation and Technology (MERIT), unpublished tabulations (Maastricht, The Netherlands, 2001).

Appendix table 4-40.
International R&D expenditures and R&D as percentage of GDP, by selected country and for all OECD countries: 1981–99

Year	United States	Japan ^a	Germany ^b	France	United Kingdom	Italy	Canada	Russian Federation	Total OECD
Total R&D expenditures (billions of constant 1996 U.S. dollars^c)									
1981	115.9	36.5	25.3	17.6	18.3	7.3	5.6	NA	250.9
1982	122.0	39.2	26.0	18.8	NA	7.5	6.0	NA	262.1
1983	130.8	42.6	26.6	19.5	17.9	8.1	6.1	NA	277.0
1984	143.3	46.2	27.6	20.7	NA	8.9	6.7	NA	299.6
1985	155.8	51.4	30.5	21.7	19.6	10.2	7.3	NA	326.5
1986	159.8	52.4	31.6	22.0	20.7	10.6	7.7	NA	337.3
1987	162.8	56.2	33.4	23.0	21.1	11.5	7.8	NA	350.0
1988	167.0	60.8	34.7	24.1	21.7	12.2	8.0	NA	364.4
1989	170.4	66.8	36.3	25.8	22.5	12.9	8.2	NA	380.5
1990	175.8	72.7	36.9	27.5	23.0	13.8	8.7	NA	398.3
1991	179.5	74.7	39.6	27.9	21.3	13.5	8.9	21.0	412.6
1992	180.1	75.2	40.0	28.7	22.4	13.4	9.2	9.6	420.5
1993	176.2	73.5	38.5	28.1	22.6	12.2	9.8	9.2	415.4
1994	176.2	72.8	38.6	27.6	22.7	11.8	10.5	8.9	418.8
1995	187.2	80.2	40.2	28.3	22.1	11.7	11.3	7.8	449.4
1996	197.3	84.7	39.9	27.8	22.5	12.1	11.1	8.8	468.0
1997	208.3	87.2	41.0	26.6	22.2	11.7	11.5	9.6	484.9
1998	219.8	88.9	42.2	26.9	22.7	12.2	12.0	9.0	502.0
1999	233.0	88.8	44.1	27.6	23.6	12.7	12.2	NA	NA
R&D expenditures as percentage of GDP									
1981	2.31	2.13	2.47	1.93	2.38	0.88	1.24	NA	1.97
1982	2.48	2.22	2.56	2.02	NA	0.90	1.39	NA	2.07
1983	2.55	2.35	2.56	2.06	2.20	0.95	1.36	NA	2.11
1984	2.60	2.43	2.56	2.16	NA	1.01	1.40	NA	2.17
1985	2.72	2.58	2.75	2.22	2.24	1.12	1.44	NA	2.28
1986	2.70	2.55	2.77	2.21	2.26	1.13	1.48	NA	2.29
1987	2.66	2.62	2.87	2.24	2.20	1.19	1.43	NA	2.29
1988	2.62	2.66	2.86	2.24	2.15	1.22	1.41	NA	2.28
1989	2.59	2.77	2.86	2.29	2.16	1.24	1.40	NA	2.29
1990	2.62	2.85	2.75	2.37	2.16	1.29	1.47	2.03	2.32
1991	2.69	2.82	2.53	2.37	2.08	1.23	1.53	1.43	2.24
1992	2.62	2.76	2.41	2.38	2.09	1.18	1.58	0.74	2.20
1993	2.49	2.68	2.35	2.40	2.12	1.13	1.63	0.77	2.15
1994	2.40	2.63	2.26	2.34	2.07	1.05	1.67	0.84	2.10
1995	2.48	2.77	2.26	2.31	1.98	1.00	1.64	0.79	2.11
1996	2.53	2.80	2.26	2.30	1.91	1.01	1.60	0.90	2.13
1997	2.55	2.88	2.29	2.22	1.83	0.99	1.61	0.99	2.16
1998	2.58	3.01	2.31	2.18	1.83	1.02	1.62	0.93	2.18
1999	2.63	3.01	2.38	2.17	1.87	1.04	1.58	1.06	NA
Total R&D expenditures (billions of constant 1995 units of national currency^d)									
1981	113.7	6,690	57.4	112.5	11.9	11,875	7.1	NA	NA
1982	119.8	7,184	58.9	120.8	NA	12,298	7.7	NA	NA
1983	128.4	7,771	59.8	125.4	11.6	13,104	7.7	NA	NA
1984	140.7	8,350	61.4	133.1	NA	14,281	8.4	NA	NA
1985	152.9	9,266	67.4	139.0	12.6	16,353	9.2	NA	NA
1986	156.9	9,423	69.5	141.4	13.2	16,907	9.6	NA	NA
1987	159.8	10,073	73.1	147.3	13.4	18,277	9.7	NA	NA
1988	163.9	10,845	75.6	154.0	13.8	19,438	10.0	NA	NA
1989	167.3	11,853	78.4	164.1	14.1	20,348	10.2	NA	NA
1990	172.5	12,843	79.4	174.6	14.2	21,597	10.8	NA	NA
1991	176.2	13,167	84.7	175.9	13.5	20,851	11.0	50,696	NA
1992	176.7	13,020	82.4	179.2	13.6	20,284	11.4	22,426	NA
1993	173.0	12,677	79.5	179.6	14.1	19,143	12.0	21,247	NA

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-40.

International R&D expenditures and R&D as percentage of GDP, by selected country and for all OECD countries: 1981–99

Year	United States	Japan ^a	Germany ^b	France	United Kingdom	Italy	Canada	Russian Federation	Total OECD
Total R&D expenditures (billions of constant 1995 units of national currency^d) — continued									
1994	172.9	12,547	78.2	178.5	14.4	18,263	12.9	20,377	NA
1995	183.6	13,369	79.5	179.1	14.2	17,864	13.1	17,009	NA
1996	193.5	14,228	80.1	180.0	14.0	18,194	12.9	19,394	NA
1997	204.6	14,845	82.3	177.2	13.9	18,157	13.5	21,169	NA
1998	216.0	15,144	84.8	179.3	14.2	19,000	14.1	19,778	NA
1999	229.2	15,141	88.7	183.6	14.9	19,763	14.4	NA	NA

GDP = gross domestic product; NA = not available or not applicable

^aData on Japanese R&D in 1996 and later years may not be consistent with data in earlier years because of changes in methodology.^bData for 1981–90 are for West Germany.^cConversions of foreign currencies to U.S. dollars are calculated with OECD purchasing power parity exchange rates. Constant 1996 dollars are based on the U.S. GDP implicit price deflator.^dConstant foreign currencies are based on deflation with each country's GDP implicit price deflator.

SOURCES: Organisation for Economic Co-operation and Development (OECD), Main Science and Technology Indicators database (Paris, November 2000); Russian Centre Science Research and Statistics and National Science Foundation, Division of Science Resources Statistics (NSF/SRS); and other national sources.

**Appendix table 4-41.
International nondefense R&D expenditures and nondefense R&D as a percentage of GDP by selected country: 1981-99**

Year	United States	Japan ^a	Germany ^b	France	United Kingdom	Italy	Canada
Total nondefense expenditures (billions of constant 1996 U.S. dollars^c)							
1981	85	36	24	15	14	7	5
1982	89	39	25	15	NA	8	6
1983	92	42	26	16	14	8	6
1984	99	46	27	17	NA	9	6
1985	109	51	29	18	16	10	7
1986	112	51	30	18	16	10	7
1987	110	56	31	18	17	12	8
1988	115	59	33	19	18	12	7
1989	125	65	34	21	18	12	8
1990	134	71	35	22	18	14	8
1991	140	74	38	22	17	13	9
1992	144	74	38	24	18	14	9
1993	142	74	38	23	19	12	10
1994	139	72	38	24	20	11	10
1995	151	78	39	25	19	12	11
1996	164	85	39	24	19	12	11
1997	172	85	39	24	19	12	11
1998	187	89	40	25	20	12	12
1999	195	NA	43	NA	NA	NA	NA
Nondefense R&D expenditures as percentage of GDP							
1981	1.7	2.1	2.3	1.6	1.8	0.9	1.2
1982	1.8	2.2	2.5	1.6	NA	0.9	1.3
1983	1.8	2.3	2.5	1.7	1.7	0.9	1.3
1984	1.8	2.4	2.5	1.8	NA	1.0	1.3
1985	1.9	2.6	2.6	1.8	1.8	1.1	1.4
1986	1.9	2.5	2.6	1.8	1.8	1.1	1.4
1987	1.8	2.6	2.7	1.8	1.8	1.2	1.4
1988	1.8	2.6	2.7	1.8	1.8	1.2	1.3
1989	1.9	2.7	2.7	1.9	1.7	1.2	1.3
1990	2.0	2.8	2.6	1.9	1.7	1.3	1.4
1991	2.1	2.8	2.4	1.9	1.7	1.2	1.5
1992	2.1	2.7	2.3	2.0	1.7	1.2	1.5
1993	2.0	2.7	2.3	2.0	1.8	1.1	1.6
1994	1.9	2.6	2.2	2.0	1.8	1.0	1.6
1995	2.0	2.7	2.2	2.0	1.7	1.0	1.6
1996	2.1	2.8	2.2	2.0	1.6	1.0	1.6
1997	2.1	2.8	2.2	2.0	1.6	1.0	1.6
1998	2.2	3.0	2.2	2.0	1.6	1.0	1.6
1999	2.2	NA	2.3	NA	NA	NA	NA

GDP = gross domestic product; NA = not available

^aData on Japanese R&D in 1996 and later years may not be consistent with data in earlier year because of changes in methodology.

^bData for 1981–90 are for West Germany.

^cNondefense R&D data are estimates. Nondefense R&D/GDP ratios are obtained directly from Organisation for Economic Co-operation and Development (OECD) reports or, for the following countries and years, are estimated by National Science Foundation from OECD data: United States for all years; Japan for 1995 and later years; Germany for 1990 and earlier years; United Kingdom for 1988 and earlier years; Italy for 1986 and earlier years; and Canada for 1990 and later years. Conversions of foreign currencies to U.S. dollars are calculated with OECD purchasing power parity exchange rates. Constant 1996 dollars are based on the U.S. GDP implicit price deflator.

NOTE: The nondefense R&D/GDP ratio for Russian Federation was 1.2 in 1990, 0.6 in 1994, and 0.7 in 1998.

SOURCES: Organisation for Economic Co-operation and Development (OECD), Main Science and Technology Indicators data base (Paris, November 2000); Russian Centre for Science Research and Statistics; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 4-42.

International R&D expenditures for G-8 countries, by performing sector and source of funds: 1998 or 1999

Country and R&D performer	Sources of R&D funds						Percent distribution, performers
	Total	Industry	Government	Higher	Private		
				education	nonprofit	Abroad	
Billions of yen							
Japan, 1998	15,169	11,008	2,921	1,092	100	48	100.0
Industry	10,800	10,513	223	—	17	47	71.2
Government	1,403	21	1,382	—	—	—	9.2
Higher education	2,252	51	1,107	1,091	3	—	14.8
Private nonprofit	714	423	209	1	80	1	4.7
Percent distribution, sources	100.0	72.6	19.3	7.2	0.7	0.3	na
Millions of deutsch marks							
Germany, 1999	92,230	58,570	31,180	0	310	2,170	100.0
Industry	63,300	56,640	5,000	—	60	1,600	68.6
Government	13,210	270	12,450	—	250	240	14.3
Higher education	15,720	1,660	13,750	—	—	310	17.0
Private nonprofit	—	—	—	—	—	—	0.0
Percent distribution, sources	100.0	63.5	33.8	0.0	0.3	2.4	na
Millions of francs							
France, 1998	185,943	99,489	69,350	1,654	1,702	13,748	100.0
Industry	115,839	94,542	10,397	11	62	10,827	62.3
Government	34,627	3,246	29,509	78	39	1,755	18.6
Higher education	32,708	1098	29,084	1,473	122	931	17.6
Private nonprofit	2,769	603	361	91	1,479	235	1.5
Percent distribution, sources	100.0	53.5	37.3	0.9	0.9	7.4	na
Millions of pounds							
United Kingdom, 1998	15,553	7,351	4,832	130	621	2,619	100.0
Industry	10,261	6,826	1,190	—	0	2,245	66.0
Government	2,079	297	1,653	6	46	77	13.4
Higher education	3,040	221	1,959	122	463	275	19.5
Private nonprofit	203	38	30	2	113	20	1.3
Percent distribution, sources	100.0	47.3	31.1	0.8	4.0	16.8	na
Billions of lire							
Italy, 1999	22,202	9,739	11,345	0	0	1,118	100.0
Industry	11,938	9,367	1,587	—	—	984	53.8
Government	4,697	106	4,504	—	—	87	21.2
Higher education	5,566	265	5,254	—	—	47	25.1
Private nonprofit	—	—	—	—	—	—	0.0
Percent distribution, sources	100.0	43.9	51.1	0.0	0.0	5.0	na
Millions of Canadian dollars							
Canada, 1999	14,911	7,343	4,658	438	416	2,056	100.0
Industry	9,387	6,888	497	—	—	2,002	63.0
Government	1,823	51	1,767	—	—	5	12.2
Higher education	3,523	380	2,341	438	326	38	23.6
Private nonprofit	178	24	53	—	90	11	1.2
Percent distribution, sources	100.0	49.2	31.2	2.9	2.8	13.8	na
Billions of rubles							
Russian Federation, 1998	25,082	8,755	13,436	87	231	2,573	100.0
Industry	17,297	7,908	7,438	13	22	1,916	69.0
Government	6,466	521	5,150	4	205	586	25.8
Higher education	1,297	320	837	69	3	68	5.2
Private nonprofit	22	6	12	—	2	3	0.1
Percent distribution, sources	100.0	34.9	53.6	0.3	0.9	10.3	na
Millions of U.S. dollars							
United States, 1999	244,143	163,397	69,794	5,562	5,390	—	100.0
Industry	180,450	160,288	20,162	—	—	—	73.9
Government	27,312	—	27,312	—	—	—	11.2
Higher education	28,363	2,133	18,601	5,562	2,066	—	11.6
Private nonprofit	8,017	976	3,718	—	3,323	—	3.3
Percent distribution, sources	100.0	66.9	28.6	2.3	2.2	—	na

— = Assumed negligible or not available; na = not applicable

SOURCES: Organisation for Economic Co-operation and Development (OECD), unpublished tabulations; Russian Centre Science Research and Statistics; National Science Foundation, Division of Science Resources Statistics (NSF/SRS); and other national sources (unpublished tabulations).

Appendix table 4-43.

**Distribution of government R&D budget appropriations in G-8 countries, by socioeconomic objective:
1998 or 1999
(Percentages)**

Socioeconomic objective	United States (1999)	Japan (1999)	Germany (1999)	France (1999)	United Kingdom (1999)	Italy (1998)	Russian Federation (1998)	Canada (1998)
Total (millions U.S. dollars^a)	77,640	19,758	15,956	12,815	8,918	7,164	3,874	3,575
Agriculture, forestry, and fishing	2.1	3.5	2.6	3.0	4.5	1.9	5.2	11.0
Industrial development	0.6	6.5	12.7	6.2	1.5	8.1	23.3	12.5
Energy	1.5	19.3	3.6	4.9	0.5	5.0	3.9	5.4
Infrastructure	2.3	3.5	1.7	0.6	1.9	0.6	2.1	3.9
Transport and telecommunications ...	2.2	2.2	0.8	NA	0.5	NA	NA	3.9
Urban and rural planning	0.1	1.3	0.8	NA	1.4	NA	NA	NA
Environmental protection	0.7	0.7	3.5	1.6	2.6	3.4	1.8	3.1
Health	20.9	3.7	3.3	5.5	14.9	5.6	2.5	8.9
Social development and services	0.9	0.9	3.2	1.5	2.8	3.6	1.9	3.4
Earth and atmosphere	1.2	1.5	1.8	0.7	1.4	1.6	2.2	4.6
Advancement of knowledge	6.0	49.5	54.7	40.3	32.1	59.4	15.2	31.4
Advancement of research	6.0	12.8	16.1	22.0	13.2	11.6	15.2	7.9
General university funds ^b	NA	36.6	38.6	18.3	19.0	47.8	NA	23.5
Civil space	10.6	6.3	4.5	11.0	2.4	8.3	12.2	8.7
Defense	53.2	4.6	8.4	22.7	34.9	2.6	29.7	4.7
Not elsewhere classified	0.0	0.0	0.2	2.0	0.5	0.0	0.0	2.4

NA = not available separately

^aConversions of foreign currencies to U.S. dollars are calculated with OECD purchasing power parity exchange rates.

^bThe United States and the Russian Federation do not have an equivalent category to general university funds.

NOTES: Percentages may not add to 100 because of rounding. U.S. data are based on budget authority. Because of general university funds and slight differences in accounting practices, the distribution of government budgets among socioeconomic objectives may not completely reflect the actual distribution of government-funded research in particular objectives. Japanese data are based on science and technology budget data, which include items other than R&D. Such items are a small proportion of the budget; therefore, the data may still be used as an approximate indicator of relative government emphasis on R&D by objective.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal R&D Funding by Budget Function: Fiscal Years 1999–2001*, NSF 01-316 (Arlington, VA, 2001); and Organisation for Economic Co-operation and Development (OECD), Main Science and Technology Indicators database (November 2000).

See appendix table 4-2.

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Appendix table 4-44.

Sources of total and industry R&D expenditures, for all OECD countries combined: 1981–98
 (Percentages)

Year	Total R&D			Industry R&D	
	Government	Industry	Other	Government	All other sources
1981	45.1	51.1	3.8	22.6	77.4
1982	44.5	51.9	3.6	22.8	77.2
1983	43.9	52.5	3.6	22.4	77.6
1984	43.0	53.3	3.7	22.0	78.0
1985	42.4	53.9	3.7	22.1	77.9
1986	42.1	54.1	3.8	21.8	78.2
1987	42.0	53.9	4.1	21.9	78.1
1988	40.5	55.3	4.2	20.1	79.9
1989	38.8	56.7	4.5	17.9	82.1
1990	37.8	57.5	4.7	16.7	83.3
1991	35.5	59.0	5.5	14.8	85.2
1992	34.9	59.4	5.7	13.4	86.6
1993	35.1	59.0	5.9	12.6	87.4
1994	34.4	59.3	6.3	11.9	88.1
1995	33.8	59.9	6.3	11.5	88.5
1996	32.2	61.3	6.5	10.7	89.3
1997	31.1	62.3	6.6	10.2	89.8
1998	30.7	62.5	6.8	9.9	90.1

SOURCES: Organisation for Economic Co-operation and Development (OECD), Main Science and Technology Indicators database (Paris, November 2000).

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Appendix table 4-45.

Proportion of industry R&D expenditures financed from foreign sources, by selected country or region: 1981–99
 (Percentages)

Year	Canada	France	Germany ^a	Italy	United Kingdom	Japan	Russian Federation	European Union
1981	7.4	7.0	1.2	4.3	8.7	0.1	NA	4.7
1982	10.7	4.8	1.3	4.7	NA	0.1	NA	NA
1983	16.6	4.6	1.4	4.3	6.8	0.1	NA	3.7
1984	17.1	6.5	1.5	6.2	NA	0.1	NA	NA
1985	14.3	6.9	1.4	6.1	11.1	0.1	NA	5.1
1986	13.6	8.0	1.4	7.3	12.2	0.1	NA	5.6
1987	16.8	8.7	1.5	6.9	12.0	0.1	NA	5.6
1988	18.0	9.2	2.1	6.6	12.0	0.1	NA	5.9
1989	17.1	10.9	2.7	6.5	13.4	0.1	NA	6.9
1990	17.9	11.1	2.7	7.3	15.5	0.1	NA	7.6
1991	18.5	11.4	2.6	9.6	16.0	0.1	NA	7.6
1992	17.7	12.0	2.5	6.3	15.0	0.1	NA	7.4
1993	17.7	11.3	1.9	6.8	15.4	0.1	NA	7.5
1994	19.7	11.2	2.0	9.5	16.0	0.1	1.9	8.0
1995	19.9	11.1	2.2	8.1	18.9	0.1	5.1	8.5
1996	21.3	11.4	2.2	9.6	21.5	0.1	6.1	9.1
1997	21.3	10.6	2.8	9.0	18.8	0.4	8.5	8.9
1998	21.3	9.3	2.7	8.2	22.0	0.4	11.1	8.9
1999	21.3	NA	2.5	8.2	NA	NA	NA	NA

NA = not available

^aData for 1981–90 are for West Germany.

SOURCES: Organisation for Economic Co-operation and Development (OECD), Main Science and Technology Indicators database (Paris, November 2000); *Science and Technology Main Indicators and Basic Statistics in the Russian Federation 1992–98*, (CCNM/DSTI/EAS, Paris, 2000).

Appendix table 4-46.
Industrial R&D performed abroad by foreign affiliates of U.S. parent companies: 1985–99
(Millions of current U.S. dollars)

Year	Total	Manufacturing
1985	3,650	3,632
1986	4,624	4,597
1987	5,226	5,162
1988	6,208	6,062
1989	6,706	6,450
1990	7,952	7,537
1991	9,147	8,369
1992	10,063	9,228
1993	9,565	7,795
1994	9,395	7,895
1995	13,052	10,846
1996	14,050	11,540
1997	13,107	11,743
1998	16,008	12,768
1999	16,765	12,354

NOTES: Data are for industrial R&D performed outside the U.S. by a company's foreign subsidiaries or other foreign organizations funded from all sources except the Federal Government. Starting with 1999 data, estimates are based on the North American Industry Classification System (NAICS). In prior years, estimates were based on the Standard Industrial Classification System (SIC).

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Research and Development in Industry: 1999, Early Release Tables* (Arlington, VA: 2001)

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Appendix table 4-47.

Industrial R&D performed abroad by foreign affiliates of U.S. parent companies, by NAICS industrial classification: 1997–99

Industry/sector	NAICS code	1997	1998	1999
Millions of current U.S. dollars				
Total		13,107	16,008	16,765
Manufacturing	31-33	—	—	12,354
Food manufacturing	311	104	131	87
Petroleum and coal products manufacturing	324	63	20	D
Chemical manufacturing	325	2,609	2,635	3,243
Pharmaceuticals	3254	2,125	1,591	2,832
Other	325 minus 3254	484	1,044	411
Plastics and rubber products manufacturing	326	186	188	172
Nonmetallic mineral product manufacturing	327	19	47	40
Primary metal manufacturing	331	10	23	7
Fabricated metal product manufacturing	332	94	138	75
Machinery manufacturing	333	609	741	707
Computer and electronic product manufacturing	334	1,884	1,585	1,902
Computer and peripheral equipment	3341	343	424	289
Communications equipment	3342	346	478	D
Semiconductor and other electronic components	3344	937	D	302
Nav., measuring, electromed, control inst.	3345	D	375	1,112
Electrical equipment, appliance, and component manufacturing	335	221	109	433
Transportation equipment manufacturing	336	3,203	4,273	3,933
Other manufacturing	31–33 minus (311, 324–327, 331–336)	—	—	D
Information	51	709	1,322	1,379
Professional, scientific, and technical services	54	164	384	523
Architectural, engineering, and related services	5413	11	D	D
Computer systems design and related services	5415	63	105	146
Scientific R&D services	5417	67	258	287
Other	54 minus (5413, 5415, 5417)	23	D	D
All other industries	total minus (31–33, 51, 54)	—	—	2,509
Millions of constant 1996 U.S. dollars				
Total		12,856	15,509	16,002
Manufacturing	31-33	—	—	11,792
Food manufacturing	311	102	127	83
Petroleum and coal products manufacturing	324	62	19	D
Chemical manufacturing	325	2,559	2,553	3,095
Pharmaceuticals	3254	2,084	1,541	2,703
Other	325 minus 3254	475	1,011	392
Plastics and rubber products manufacturing	326	182	182	164
Nonmetallic mineral product manufacturing	327	19	46	38
Primary metal manufacturing	331	10	22	7
Fabricated metal product manufacturing	332	92	134	72
Machinery manufacturing	333	597	718	675
Computer and electronic product manufacturing	334	1,848	1,536	1,815
Computer and peripheral equipment	3341	336	411	276
Communications equipment	3342	339	463	D
Semiconductor and other electronic components	3344	919	D	288
Nav., Measuring, electromed, control inst.	3345	D	363	1,061

See explanatory notes, if any, and SOURCE at end of table

Appendix table 4-47.

Industrial R&D performed abroad by foreign affiliates of U.S. parent companies, by NAICS industrial classification: 1997–99

Industry/sector	NAICS code	1997	1998	1999
Millions of constant 1996 U.S. dollars (continued)				
Electrical equipment, appliance, and component manufacturing	335	217	106	413
Transportation equipment manufacturing	336	3,142	4,140	3,754
Other manufacturing	31–33 minus (311, 324–327, 331–336)	—	—	D
Information	51	695	1,281	1,316
Professional, scientific, and technical services	54	161	372	499
Architectural, engineering, and related services	5413	11	D	D
Computer systems design and related services	5415	62	102	139
Scientific R&D services	5417	66	250	274
Other	54 minus (5413, 5415, 5417)	23	D	D
All other industries	total minus (31–33, 51, 54)	—	—	2,395

NAICS = North American Industry Classification System; D = withheld to avoid disclosing operations of individual companies; — = data not tabulated under NAICS code

NOTES: Data are for industrial R&D performed outside the United States by a company's foreign subsidiaries or other foreign organizations funded from all sources except the Federal government. Constant dollar figures were calculated using calendar year gross domestic product deflators (1996 = 100). See appendix table 4-1. Starting with the 1999 survey, estimates are based on NAICS. In prior years, estimates were based on the Standard Industrial Classification System (SIC). For this table, companies in the 1997 and 1998 surveys were assigned NAICS industry codes based on their SIC industry codes. Consequently, the estimates for 1997 and 1998 in this table are not necessarily representative of the NAICS categories of industries in those years. They are included for comparison purposes only.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Research and Development in Industry: 1999, Early Release Tables* (Arlington, VA, 2001).

Appendix table 4-48.

R&D performed abroad by majority-owned foreign affiliates of U.S. parent companies, by region and country: 1982, 1989, and 1994–98

(Millions of current U.S. dollars)

Sector and region/country	1982	1989	1994	1995	1996	1997	1998
Total	3,851	7,922	11,877	12,582	14,039	14,593	14,986
Manufacturing	3,247	6,446	10,053	10,791	12,205	12,505	12,746
Nonmanufacturing	604	1,476	1,824	1,791	1,834	2,088	2,240
Total expenditures by region/country							
Canada	505	975	836	1,068	1,563	1,823	1,771
Europe	2,892	5,475	8,676	9,144	9,662	10,003	10,580
Belgium	223	313	469	292	356	310	326
France	332	521	1,372	1,271	1,315	1,281	1,321
Germany	1,079	1,726	2,849	3,068	3,073	2,940	3,042
Ireland	9	156	396	171	193	320	261
Italy	150	393	365	346	554	569	586
Netherlands	65	367	415	495	547	480	501
Spain	40	58	D	288	327	181	198
Sweden	28	31	72	691	443	405	448
Switzerland	60	59	191	242	190	230	234
United Kingdom	824	1,718	2,158	1,935	2,139	2,843	3,144
Other	82	133	D	345	525	444	519
Asia and Pacific	238	1,272	1,775	1,865	2,076	1,869	1,690
Japan	112	1,000	1,130	1,286	1,333	1,089	1,030
Australia	114	190	230	287	409	369	302
Singapore	D	24	167	63	88	73	63
Other	D	58	248	229	246	338	295
Latin America and other Western hemisphere	169	155	477	389	546	663	753
Brazil	97	92	238	249	346	437	448
Mexico	30	37	183	58	121	126	191
Other	42	26	56	82	79	100	114
Middle East	11	33	98	97	170	208	157
Israel	11	29	96	97	169	208	157
Other	—	4	2	—	1	—	—
Africa	25	11	15	19	21	26	35
South Africa	23	9	14	17	18	22	30
Other	2	2	1	2	3	4	5

— = Less than \$500,000; D = withheld to avoid disclosing operations of individual companies

NOTES: Data are for majority-owned (more than 50 percent ownership) nonbank foreign affiliates of nonbank U.S. parents; 1998 estimates are preliminary. Data include R&D expenditures conducted by affiliates, whether for themselves or for others under contract; exclude R&D expenditures conducted by others for affiliates under contract. Manufacturing data exclude petroleum manufacturing before 1997.

SOURCE: U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad: Operations of U.S. Parent Companies and Their Foreign Affiliates* (Washington, DC, annual series).

Appendix table 4-49.

R&D performed by U.S. affiliates of foreign companies in the United States, by region and country of ultimate beneficial owner: 1980–98
 (Millions of current U.S. dollars)

Region/country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total	1,946	3,110	3,744	4,164	4,738	5,240	5,804	6,521	7,834	9,465	11,522	11,872	13,864	14,199	15,566	17,542	17,984	19,428	25,148
Canada	135	777	1,032	1,212	1,405	1,550	1,542	1,666	1,804	1,758	1,944	2,060	2,113	2,159	2,332	1,395	1,479	1,697	2,398
Europe	1,544	1,936	2,229	2,324	2,632	2,918	3,450	3,881	4,754	6,022	7,520	7,785	8,993	9,362	10,313	13,201	12,910	13,820	17,693
United Kingdom ...	312	405	520	559	664	748	764	833	1,171	1,645	1,889	2,046	2,177	2,211	2,499	2,428	2,684	3,090	3,836
Germany	380	436	529	591	602	671	851	1,139	1,242	1,503	1,764	1,720	2,100	2,209	2,425	3,869	3,107	3,267	5,354
France	146	204	232	215	261	166	352	366	435	572	812	953	1,204	1,235	1,449	1,604	1,792	1,885	2,070
Netherlands	299	373	397	387	432	514	517	542	618	703	784	663	696	697	736	818	964	1,014	1,010
Switzerland	338	416	447	463	546	625	744	765	962	1,195	1,669	1,849	2,064	2,423	2,444	3,092	3,367	3,161	3,957
Sweden	36	53	54	62	63	116	141	128	166	214	281	237	308	200	289	781	375	703	693
Other	33	49	50	47	64	78	81	108	160	190	321	317	444	387	471	609	621	700	773
Japan	88	142	141	171	210	267	292	307	571	822	1,307	1,353	1,709	1,801	1,790	1,874	2,166	2,486	3,361
Latin America	D	D	D	401	423	427	427	391	352	400	386	397	580	539	637	323	395	400	423
All other countries ..	D	D	D	56	68	78	93	276	353	463	365	277	469	338	494	768	1,034	1,025	1,273

D = withheld to avoid disclosing operations of individual companies

NOTES: Data are for nonbank U.S. affiliates with 10 percent or more foreign ownership; 1998 estimates are preliminary. Data exclude R&D expenditures conducted for others under contract.

SOURCE: U.S. Bureau of Economic Analysis, *Foreign Direct Investment in the United States: Operations of U.S. Affiliates of Foreign Companies* (Washington, DC, annual series).

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Appendix table 4-50.

R&D performed by majority-owned U.S. affiliates of foreign companies in the United States, by region/country of ultimate beneficial owner: 1980 and 1987–98
(Millions of current U.S. dollars)

Sector and region/country	1980	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total	1,517	4,497	5,485	6,720	8,511	9,127	10,745	11,262	12,671	14,846	15,641	17,216	22,073
Manufacturing	1,245	3,809	4,773	5,915	7,282	7,839	9,056	9,560	10,855	12,828	13,090	14,270	18,256
Nonmanufacturing	272	588	712	805	1,229	1,288	1,689	1,702	1,816	2,018	2,551	2,946	3,817
Total expenditures by region/country													
Canada.....	113	D	D	D	D	D	D	D	D	1,337	1,452	1,668	2,353
Europe	1,217	3,458	4,241	5,414	6,762	7,275	8,325	8,628	9,487	11,442	11,535	12,327	15,904
France	39	332	402	510	766	913	1,230	1,190	1,383	1,529	1,680	1,783	1,905
Germany	281	824	963	1,216	1,435	1,596	1,855	2,003	2,147	3,563	2,747	2,923	4,880
Italy	D	D	73	93	151	143	91	132	157	172	D	D	D
Netherlands	D	540	615	690	757	642	685	674	719	786	937	990	985
Sweden	D	124	160	205	271	225	322	180	263	D	D	687	680
Switzerland	329	D	D	1,060	1,455	1,637	1,873	2,117	2,127	2,490	2,699	2,369	3,083
United Kingdom	247	790	1,085	1,568	1,809	1,987	2,090	2,139	2,428	2,316	2,575	2,984	3,685
Other	16	47	D	72	118	132	179	193	263	D	897	591	686
Asia and Pacific	D	179	345	412	796	834	1,080	1,232	1,397	1,611	2,116	2,642	3,180
Japan	D	133	282	369	709	741	938	1,112	1,200	1,259	1,531	2,036	2,578
Other	D	46	63	43	87	93	142	120	197	352	585	606	602
Latin America and other western hemisphere	155	329	302	352	314	330	534	D	610	317	364	373	393
Middle East	2	14	9	10	9	9	20	38	62	72	100	103	129
Africa	D	D	D	D	D	D	4	5	2	D	D	D	D

D = withheld to avoid disclosing operations of individual companies

NOTES: Data are for nonbank U.S. affiliates with more than 50 percent foreign ownership; 1996 data are revised, 1998 estimates are preliminary. Data exclude R&D expenditures conducted for others under contract.

These R&D expenditures are a subset of foreign R&D expenditures based on 10 percent ownership reported in appendix table 4-49. Manufacturing data exclude petroleum manufacturing before 1997. The industrial classification system used in these data changed from the Standard Industrial Classification System (SIC) to North American Industry Classification System (NAICS) in 1997. See NAICS-based industrial detail in appendix table 4-51.

SOURCE: U.S. Bureau of Economic Analysis, *Foreign Direct Investment in the United States: Operations of U.S. Affiliates of Foreign Companies* (Washington, DC, annual series).

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Appendix table 4-51.

**R&D performed by majority-owned U.S. affiliates of foreign companies in the United States,
by NAICS industry of affiliate: 1997 and 1998**

Industry/sector	NAICS code	1997	1998
Millions of current U.S. dollars			
Total		17,216	22,073
Manufacturing	31–33	14,270	18,256
Food manufacturing	311	239	225
Printing and related support activities	323	34	42
Petroleum and coal products manufacturing	324	272	478
Chemical manufacturing	325	6,754	7,193
Basic chemicals	3251	617	580
Pharmaceuticals	3254	5,304	5,773
Other	325 minus (3251, 3254)	833	840
Plastics and rubber products manufacturing	326	331	350
Nonmetallic mineral product manufacturing	327	214	160
Primary metal manufacturing	331	60	66
Fabricated metal product manufacturing	332	203	184
Machinery manufacturing	333	721	725
Agriculture, construction, and mining machinery	3331	103	86
Industrial machinery	3332	83	80
Other	333 minus (3331, 3332)	535	559
Computer and electronic product manufacturing	334	3,413	4,509
Computer and peripheral equipment	3341	120	290
Communications equipment	3342	2,243	3,115
Semiconductor and other electronic components	3344	586	641
Other	334 minus (3341, 3342, 3344)	464	463
Electrical equipment, appliance, and component manufacturing	335	781	898
Transportation equipment manufacturing	336	641	2,678
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	500	2,503
Other	336 minus (3361, 3362, 3363)	141	175
Other manufacturing	31–33 minus (311, 323–327, 331–336)	607	748
Wholesale trade	42	D	D
Information	51	260	332
Publishing industries	511	D	D
Motion picture and sound recording industries	512	5	1
Broadcasting and telecommunications	513	7	D
Information services and data processing services	514	D	D
Finance and insurance (except depository institutions)	52	12	D
Professional, scientific, and technical services	54	597	685
Architectural, engineering, and related services	5413	12	20
Computer systems design and related services	5415	281	333
Management, scientific, and technical consulting	5416	—	—
Other	54 minus (5413, 5415, 5416)	303	330
All other industries	D	D	D
Millions of constant 1996 U.S. dollars			
Total		16,887	21,384
Manufacturing	31–33	13,997	17,686
Food manufacturing	311	234	218
Printing and related support activities	323	33	41
Petroleum and coal products manufacturing	324	267	463

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 4-51.

**R&D performed by majority-owned U.S. affiliates of foreign companies in the United States,
by NAICS industry of affiliate: 1997 and 1998**

Industry/sector	NAICS code	1997	1998
Millions of constant 1996 U.S. dollars (continued)			
Chemical manufacturing	325	6,625	6,969
Basic chemicals	3251	605	562
Pharmaceuticals	3254	5,203	5,593
Other	325 minus (3251, 3254)	817	814
Plastics and rubber products manufacturing	326	325	339
Nonmetallic mineral product manufacturing	327	210	155
Primary metal manufacturing	331	59	64
Fabricated metal product manufacturing	332	199	178
Machinery manufacturing	333	707	702
Agriculture, construction, and mining machinery	3331	101	83
Industrial machinery	3332	81	78
Other	333 minus (3331, 3332)	525	542
Computer and electronic product manufacturing	334	3,348	4,368
Computer and peripheral equipment	3341	118	281
Communications equipment	3342	2,200	3,018
Semiconductor and other electronic components	3344	575	621
Other	334 minus (3341, 3342, 3344)	455	449
Electrical equipment, appliance, and component manufacturing	335	766	870
Transportation equipment manufacturing	336	629	2,594
Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363	490	2,425
Other	336 minus (3361, 3362, 3363)	138	170
Other manufacturing	31–33 minus (311, 323–327, 331–336)	595	725
Wholesale trade	42	D	D
Information	51	255	322
Publishing industries	511	D	D
Motion picture and sound recording industries	512	5	1
Broadcasting and telecommunications	513	7	D
Information services and data processing services	514	D	D
Finance and insurance (except depository institutions)	52	12	D
Professional, scientific, and technical services	54	586	664
Architectural, engineering, and related services	5413	12	19
Computer systems design and related services	5415	276	323
Management, scientific, and technical consulting	5416	—	—
Other	54 minus (5413, 5415, 5416)	297	320
All other industries	D	D	

NAICS = North American Industry Classification System; D = withheld to avoid disclosing operations of individual companies; — = Less than \$500,000

NOTES: Data are for nonbank U.S. affiliates with more than 50 percent foreign ownership; 1998 estimates are preliminary. Data exclude R&D expenditures conducted for others under contract. Constant dollar figures were calculated using calendar year GDP deflators (1996 = 100).

SOURCE: U.S. Bureau of Economic Analysis, *Foreign Direct Investment in the United States: Operations of U.S. Affiliates of Foreign Companies* (Washington, DC, annual series).

See appendix table 4-1.

Appendix table 4-52

Industrial R&D expenditure flows and industrial globalization R&D (IGRD) index, by sector and selected industries: 1998

Sector/industry	R&D expenditure flows and U.S. industrial R&D (millions of current U.S. dollars)			Sector/industry share (percent)			IGRD index ^b
	Foreign R&D	Overseas R&D	U.S. industrial R&D ^a	Foreign R&D	Overseas R&D	U.S. industrial R&D	
All	\$22,073	\$16,008	\$145,016	100	100	100	na
Manufacturing	18,256	—	—	83	NA	NA	NA
Chemicals	7,193	2,635	18,733	33	16	13	25
Machinery	725	741	5,831	3	5	4	4
Computers	4,509	1,585	31,873	20	10	22	15
Electronic equipment	898	109	2,139	4	1	1	2
Transportation equipment	2,678	4,273	20,677	12	27	14	19
Nonmanufacturing	3,817	—	—	17	NA	NA	NA
Professional and R&D services	685	384	11,440	3	2	8	3
Information	332	1,322	13,025	2	8	9	5

— = Data not tabulated under North American Industry Classification System (NAICS); na = not applicable; NA = not available

^aCompany-funded industrial R&D performed within company facilities in the United States funded from all sources except the Federal Government. Excludes R&D contracted out to other organizations.

^bIGRD index= (foreign R&D share + overseas R&D share)/2.

NOTES: Foreign R&D refers to R&D performed by U.S. affiliates of foreign companies in the United States. Overseas R&D refers to R&D performed by foreign affiliates of U.S. parent companies abroad.

See appendix tables 4-32, 4-47, and 4-51.

Science & Engineering Indicators – 2002

Appendix table 5-1.

**Total, federally funded, and nonfederally funded academic R&D, by basic research, applied research, and development: 1953–2000
(Percentages)**

Year	Total academic R&D				Federally supported academic R&D				Nonfederally supported academic R&D			
	Total academic	Basic research	Applied research	Development	Total academic	Basic research	Applied research	Development	Total academic	Basic research	Applied research	Development
1953	100.0	45.1	49.1	5.9	54.6	55.0	39.6	6.0	45.4	33.1	60.5	5.6
1954	100.0	49.2	45.5	5.6	54.8	58.8	36.4	5.5	45.2	37.5	56.6	5.9
1955	100.0	52.6	41.5	6.1	55.8	61.3	33.0	6.3	44.2	41.7	52.3	6.0
1956	100.0	56.3	37.3	6.4	56.5	64.7	29.4	6.3	43.5	45.3	47.6	6.5
1957	100.0	60.3	33.9	6.0	55.9	69.0	26.0	5.0	44.1	49.2	44.0	7.3
1958	100.0	63.5	31.0	5.7	57.0	72.1	23.6	4.6	43.0	52.1	40.8	7.1
1959	100.0	66.2	28.5	5.3	60.8	73.9	21.9	4.5	39.2	54.3	38.7	6.5
1960	100.0	68.8	26.4	5.0	64.3	75.3	20.5	4.2	35.7	57.1	36.9	6.3
1961	100.0	71.7	23.9	4.6	66.8	77.6	18.7	3.9	33.2	59.9	34.3	5.8
1962	100.0	74.2	21.8	4.0	69.2	79.5	17.3	3.3	30.8	62.4	31.7	5.6
1963	100.0	77.2	19.5	3.4	71.2	82.1	15.3	2.6	28.8	64.9	30.1	5.3
1964	100.0	77.9	18.6	3.6	72.4	82.8	14.3	3.0	27.6	65.0	30.0	5.0
1965	100.0	76.6	19.1	4.5	73.2	80.9	15.1	4.1	26.8	64.7	29.9	5.4
1966	100.0	75.9	19.3	4.8	73.4	79.9	15.6	4.6	26.6	65.0	29.6	5.4
1967	100.0	76.4	19.1	4.6	73.3	79.7	16.0	4.4	26.7	67.3	27.8	5.0
1968	100.0	76.9	18.5	4.7	72.5	79.8	15.8	4.5	27.5	69.2	25.8	5.0
1969	100.0	76.9	18.3	4.8	71.2	79.3	15.8	4.9	28.8	71.0	24.4	4.6
1970	100.0	76.7	18.7	4.6	69.7	78.5	16.6	5.0	30.3	72.7	23.4	3.8
1971	100.0	76.7	19.5	3.8	68.6	78.7	17.4	3.9	31.4	72.4	24.0	3.6
1972	100.0	73.9	22.5	3.7	68.6	76.0	20.7	3.3	31.4	69.3	26.3	4.4
1973	100.0	71.2	24.6	4.3	68.0	74.1	22.4	3.5	32.0	65.0	29.1	5.8
1974	100.0	71.0	24.7	4.4	67.2	74.5	22.1	3.5	32.8	63.7	30.0	6.3
1975	100.0	69.5	26.2	4.4	67.2	73.7	22.9	3.5	32.8	60.9	32.8	6.2
1976	100.0	68.6	26.7	4.7	67.2	73.5	22.8	3.8	32.8	58.7	34.8	6.4
1977	100.0	68.3	25.9	5.8	66.6	73.1	21.6	5.3	33.4	58.7	34.4	7.0
1978	100.0	67.6	25.0	7.5	66.6	72.1	20.3	7.6	33.4	58.6	34.3	7.1
1979	100.0	67.0	24.8	8.2	67.3	70.7	20.6	8.7	32.7	59.4	33.5	7.1
1980	100.0	66.8	25.1	8.0	67.2	70.6	21.0	8.4	32.8	59.2	33.5	7.4
1981	100.0	66.9	25.1	8.0	65.9	71.3	20.4	8.3	34.1	58.2	34.3	7.5
1982	100.0	67.0	25.2	7.9	64.2	71.2	20.6	8.1	35.8	59.3	33.3	7.3
1983	100.0	66.9	25.6	7.5	63.1	70.8	21.5	7.7	36.9	60.1	32.7	7.2
1984	100.0	67.1	25.5	7.4	62.8	71.1	21.3	7.6	37.2	60.4	32.5	7.1
1985	100.0	68.2	24.5	7.3	62.0	72.1	20.3	7.6	38.0	61.7	31.4	6.9
1986	100.0	68.8	24.1	7.1	60.9	72.9	19.8	7.3	39.1	62.5	30.7	6.8
1987	100.0	67.5	25.1	7.4	60.7	71.2	21.2	7.7	39.3	61.9	31.3	6.9
1988	100.0	65.7	26.6	7.7	60.4	69.1	22.8	8.1	39.6	60.5	32.4	7.1
1989	100.0	65.4	26.8	7.8	59.6	68.9	22.8	8.3	40.4	60.1	32.7	7.2
1990	100.0	65.7	26.0	8.3	58.7	69.3	21.5	9.1	41.3	60.5	32.4	7.1
1991	100.0	66.3	25.3	8.4	58.6	69.6	20.9	9.5	41.4	61.5	31.5	6.9
1992	100.0	66.6	25.2	8.2	59.5	69.9	20.9	9.1	40.5	61.7	31.4	6.9
1993	100.0	66.6	25.1	8.3	60.0	70.2	20.6	9.2	40.0	61.2	31.9	7.0
1994	100.0	66.7	24.9	8.4	60.1	70.3	20.3	9.3	39.9	61.1	31.9	7.0
1995	100.0	67.0	25.0	8.0	60.1	70.9	20.4	8.7	39.9	61.1	31.9	7.0
1996	100.0	67.7	24.8	7.5	59.4	71.7	20.3	8.0	40.6	61.8	31.3	6.9
1997	100.0	67.8	24.5	7.7	58.7	72.1	19.7	8.2	41.3	61.8	31.4	6.9
1998	100.0	68.0	24.3	7.7	58.5	72.9	19.0	8.2	41.5	61.3	31.8	7.0
1999	100.0	68.5	24.0	7.4	58.2	73.6	18.6	7.8	41.8	61.5	31.6	6.9
2000	100.0	68.5	24.1	7.4	58.0	73.6	18.6	7.8	42.0	61.5	31.6	6.9

NOTES: Data for 1999 and 2000 are preliminary, and data for all years are reported on a calendar year basis rather than an academic year basis. See appendix tables 4-3, 4-7, 4-11, and 4-15 for the data underlying these percentages.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources*, various issues (Arlington, VA).

See figure 5-2 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 5-2.

Support for academic R&D, by sector: 1953–2000

Year	Total	Source of support				
		Federal Government	State/local government	Industry	Academic institutions	All other sources
Millions of current dollars						
1953	273	149	40	21	37	27
1954	301	165	45	24	40	29
1955	342	191	50	27	42	32
1956	391	221	57	32	46	36
1957	433	242	64	37	51	40
1958	491	280	72	39	56	45
1959	586	356	81	40	61	50
1960	705	453	90	40	67	55
1961	834	557	101	40	75	62
1962	993	687	112	41	84	70
1963	1,178	839	125	41	96	78
1964	1,375	995	138	41	114	88
1965	1,595	1,167	150	42	136	101
1966	1,818	1,335	160	45	165	114
1967	2,035	1,491	168	52	200	126
1968	2,187	1,586	185	58	221	139
1969	2,280	1,624	208	61	233	155
1970	2,418	1,686	237	66	259	171
1971	2,565	1,760	262	72	290	182
1972	2,757	1,890	282	79	312	195
1973	2,953	2,009	302	90	343	211
1974	3,216	2,160	320	104	393	239
1975	3,570	2,400	348	118	432	272
1976	3,899	2,619	369	131	480	300
1977	4,346	2,893	394	155	569	337
1978	4,996	3,329	443	182	679	364
1979	5,715	3,848	482	215	785	386
1980	6,455	4,335	519	264	920	419
1981	7,085	4,670	581	314	1,058	463
1982	7,603	4,879	621	363	1,207	534
1983	8,251	5,210	658	432	1,357	595
1984	9,154	5,748	721	518	1,514	654
1985	10,308	6,388	834	630	1,743	713
1986	11,540	7,028	969	745	2,019	780
1987	12,807	7,768	1,065	831	2,262	882
1988	14,220	8,592	1,165	933	2,527	1,003
1989	15,632	9,315	1,274	1,061	2,852	1,131
1990	16,936	9,936	1,399	1,166	3,187	1,249
1991	18,202	10,663	1,483	1,242	3,457	1,358
1992	19,384	11,524	1,525	1,320	3,568	1,448
1993	20,485	12,300	1,556	1,391	3,708	1,530
1994	21,591	12,985	1,621	1,455	3,936	1,594
1995	22,599	13,580	1,750	1,547	4,108	1,616
1996	23,686	14,067	1,858	1,667	4,430	1,665
1997	25,088	14,716	1,926	1,812	4,846	1,790
1998	26,664	15,589	1,987	1,971	5,183	1,934
1999	28,363	16,518	2,083	2,133	5,562	2,066
2000	30,154	17,475	2,197	2,310	5,969	2,203

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-2.
Support for academic R&D, by sector: 1953–2000

Year	Total	Source of support			
		Federal Government	State/local government	Industry	Academic institutions
Millions of constant 1996 dollars^a					
1953	1,416	774	205	106	190
1954	1,548	846	229	121	203
1955	1,729	966	253	137	212
1956	1,912	1,081	276	154	225
1957	2,049	1,143	303	173	241
1958	2,269	1,294	333	180	256
1959	2,678	1,625	368	181	279
1960	3,175	2,039	406	180	302
1961	3,714	2,480	448	178	332
1962	4,365	3,019	493	178	369
1963	5,122	3,646	543	176	417
1964	5,889	4,263	589	174	486
1965	6,705	4,907	629	175	572
1966	7,433	5,458	654	184	673
1967	8,072	5,912	666	204	791
1968	8,316	6,030	702	219	838
1969	8,264	5,884	754	219	845
1970	8,319	5,800	816	225	890
1971	8,404	5,765	858	236	949
1972	8,664	5,940	886	248	979
1973	8,789	5,978	897	266	1,021
1974	8,781	5,898	874	284	1,072
1975	8,917	5,996	869	295	1,078
1976	9,216	6,191	872	310	1,135
1977	9,653	6,425	875	343	1,263
1978	10,358	6,901	919	376	1,408
1979	10,937	7,365	922	411	1,502
1980	11,317	7,599	909	462	1,612
1981	11,360	7,487	932	503	1,696
1982	11,475	7,364	937	548	1,821
1983	11,979	7,564	955	627	1,969
1984	12,813	8,045	1,009	724	2,119
1985	13,988	8,669	1,131	855	2,365
1986	15,323	9,331	1,287	989	2,680
1987	16,508	10,013	1,372	1,071	2,916
1988	17,728	10,712	1,452	1,163	3,150
1989	18,773	11,186	1,530	1,274	3,425
1990	19,577	11,485	1,617	1,347	3,683
1991	20,301	11,893	1,653	1,385	3,856
1992	21,106	12,548	1,660	1,437	3,885
1993	21,780	13,078	1,654	1,479	3,942
1994	22,488	13,525	1,688	1,515	4,100
1995	23,036	13,843	1,783	1,576	4,187
1996	23,686	14,067	1,858	1,667	4,430
1997	24,608	14,434	1,889	1,777	4,753
1998	25,832	15,103	1,925	1,910	5,021
1999	27,072	15,766	1,988	2,036	5,309
2000	28,205	16,345	2,055	2,161	5,583

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-2.
Support for academic R&D, by sector: 1953–2000

Year	Total	Source of support				
		Federal Government	State/local government	Industry	Academic institutions	All other sources
Percent						
1953	100.0	54.6	14.7	7.7	13.6	9.9
1954	100.0	54.8	15.0	8.0	13.3	9.6
1955	100.0	55.8	14.6	7.9	12.3	9.4
1956	100.0	56.5	14.6	8.2	11.8	9.2
1957	100.0	55.9	14.8	8.5	11.8	9.2
1958	100.0	57.0	14.7	7.9	11.4	9.2
1959	100.0	60.8	13.8	6.8	10.4	8.5
1960	100.0	64.3	12.8	5.7	9.5	7.8
1961	100.0	66.8	12.1	4.8	9.0	7.4
1962	100.0	69.2	11.3	4.1	8.5	7.0
1963	100.0	71.2	10.6	3.5	8.1	6.6
1964	100.0	72.4	10.0	3.0	8.3	6.4
1965	100.0	73.2	9.4	2.6	8.5	6.3
1966	100.0	73.4	8.8	2.5	9.1	6.3
1967	100.0	73.3	8.3	2.6	9.8	6.2
1968	100.0	72.5	8.5	2.7	10.1	6.4
1969	100.0	71.2	9.1	2.7	10.2	6.8
1970	100.0	69.7	9.8	2.7	10.7	7.1
1971	100.0	68.6	10.2	2.8	11.3	7.1
1972	100.0	68.6	10.2	2.9	11.3	7.1
1973	100.0	68.0	10.2	3.0	11.6	7.1
1974	100.0	67.2	10.0	3.2	12.2	7.4
1975	100.0	67.2	9.7	3.3	12.1	7.6
1976	100.0	67.2	9.5	3.4	12.3	7.7
1977	100.0	66.6	9.1	3.6	13.1	7.8
1978	100.0	66.6	8.9	3.6	13.6	7.3
1979	100.0	67.3	8.4	3.8	13.7	6.8
1980	100.0	67.2	8.0	4.1	14.3	6.5
1981	100.0	65.9	8.2	4.4	14.9	6.5
1982	100.0	64.2	8.2	4.8	15.9	7.0
1983	100.0	63.1	8.0	5.2	16.4	7.2
1984	100.0	62.8	7.9	5.7	16.5	7.1
1985	100.0	62.0	8.1	6.1	16.9	6.9
1986	100.0	60.9	8.4	6.5	17.5	6.8
1987	100.0	60.7	8.3	6.5	17.7	6.9
1988	100.0	60.4	8.2	6.6	17.8	7.1
1989	100.0	59.6	8.1	6.8	18.2	7.2
1990	100.0	58.7	8.3	6.9	18.8	7.4
1991	100.0	58.6	8.1	6.8	19.0	7.5
1992	100.0	59.5	7.9	6.8	18.4	7.5
1993	100.0	60.0	7.6	6.8	18.1	7.5
1994	100.0	60.1	7.5	6.7	18.2	7.4
1995	100.0	60.1	7.7	6.8	18.2	7.2
1996	100.0	59.4	7.8	7.0	18.7	7.0
1997	100.0	58.7	7.7	7.2	19.3	7.1
1998	100.0	58.5	7.5	7.4	19.4	7.3
1999	100.0	58.2	7.3	7.5	19.6	7.3
2000	100.0	58.0	7.3	7.7	19.8	7.3

^aSee appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 1996 dollars.

NOTES: Data for 1999 and 2000 are preliminary, and data for all years are reported on a calendar year basis rather than an academic year basis. Data in subsequent appendix tables are reported on an academic year basis and therefore differ from those reported in this table.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *National Patterns of R&D Resources, various issues* (Arlington, VA).

See figure 5-4 in Volume 1.

Appendix table 5-3.
Sources of R&D funds at private and public institutions: 1979, 1989, and 1999

Institution type	Source of funds											
	Total		Federal Government		State/local government		Industry		Academic institutions		Other sources	
	Dollars (millions)	Percent	Dollars (millions)	Percent	Dollars (millions)	Percent	Dollars (millions)	Percent	Dollars (millions)	Percent	Dollars (millions)	Percent
1979												
All	5,366.1	100.0	3,598.2	67.1	471.9	8.8	193.2	3.6	735.1	13.7	367.7	6.9
Private	1,978.5	100.0	1,551.5	78.4	48.0	2.4	81.5	4.1	144.2	7.3	153.3	7.7
Public	3,387.6	100.0	2,046.7	60.4	423.8	12.5	111.7	3.3	590.9	17.4	214.5	6.3
1989												
All	14,976.5	100.0	8,990.6	60.0	1,223.6	8.2	993.7	6.6	2,697.8	18.0	1,070.8	7.1
Private	5,165.3	100.0	3,796.2	73.5	123.2	2.4	361.7	7.0	451.4	8.7	432.8	8.4
Public	9,811.2	100.0	5,194.4	52.9	1,100.4	11.2	632.0	6.4	2,246.4	22.9	638.0	6.5
1999												
All	27,489.1	100.0	16,046.8	58.4	2,028.4	7.4	2,047.7	7.4	5,366.2	19.5	1,999.9	7.3
Private	8,860.8	100.0	6,379.7	72.0	176.7	2.0	691.1	7.8	837.6	9.5	775.7	8.8
Public	18,628.2	100.0	9,667.1	51.9	1,851.7	9.9	1,356.6	7.3	4,528.6	24.3	1,224.3	6.6

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Academic Science and Engineering R&D Expenditures: Fiscal Year 1999, Detailed Statistical Tables*, NSF 01-329 (Arlington, VA, 2001); and NSF, annual series.

See figure 5-6 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 5-4.

R&D expenditures at the top 100 academic institutions, by source of funds: 1999
 (Millions of current dollars)

Rank and academic institution	Institution type	Source of funds				
		Total	Federal Government	State/local government	Industry	All other sources
All institutions		27,489	16,047	2,028	2,048	5,366
1 University of Michigan, all campuses	Public	509	334	5	34	103
2 University of Washington-Seattle	Public	483	368	12	51	43
3 University of California-Los Angeles	Public	478	252	10	34	108
4 University of Wisconsin-Madison	Public	463	250	39	14	102
5 University of California-San Diego	Public	462	292	22	31	72
6 University of California-Berkeley	Public	452	191	48	22	149
7 Johns Hopkins University ^a	Private	439	352	1	15	26
8 Johns Hopkins University Applied Physics Lab	Private	436	419	0	0	17
9 Stanford University	Private	427	354	3	32	19
10 Massachusetts Institute of Technology	Private	420	309	—	75	13
Top 10 institutions		4,566	3,121	140	310	652
11 University of California-San Francisco	Public	417	233	19	37	72
12 Texas A&M University, all campuses	Public	402	149	95	35	115
13 Cornell University, all campuses	Private	396	235	38	12	75
14 University of Pennsylvania	Private	384	279	2	30	33
15 Pennsylvania State University, all campuses	Public	379	199	16	66	99
16 University of Minnesota, all campuses	Public	371	208	49	24	62
17 University of Illinois at Urbana-Champaign	Public	358	186	38	13	107
18 Duke University	Private	348	187	6	122	14
19 Harvard University	Private	326	266	2	12	0
20 Ohio State University, all campuses	Public	323	135	50	52	59
Top 20 institutions		8,271	5,198	454	712	1,288
21 University of Arizona	Public	320	178	8	17	104
22 University of Colorado, all campuses	Public	319	245	6	10	25
23 Washington University	Private	316	219	7	20	35
24 University of California-Davis	Public	308	124	22	16	120
25 University of Florida	Public	304	122	66	28	78
26 University of Southern California	Private	281	200	9	23	49
27 Columbia University in the City of New York	Private	280	240	1	3	11
28 Yale University	Private	274	213	—	15	17
29 Baylor College of Medicine	Private	272	141	2	19	39
30 North Carolina State University at Raleigh	Public	271	66	97	31	75
Top 30 institutions		11,215	6,946	673	894	1,842
31 Georgia Institute of Technology, all campuses	Public	264	113	14	63	74
32 University of Texas at Austin	Public	258	165	18	40	31
33 University of Maryland at College Park	Public	258	145	45	3	57
34 University of North Carolina at Chapel Hill	Public	253	183	15	6	49
35 University of Pittsburgh, all campuses	Public	249	195	1	13	22
36 University of Georgia	Public	237	56	47	11	122
37 Northwestern University	Private	234	133	4	14	58
38 University of Alabama at Birmingham	Public	232	165	1	10	18
39 Purdue University, all campuses	Public	226	96	26	29	76
40 Louisiana State University, all campuses	Public	226	76	69	13	54
Top 40 institutions		13,652	8,272	913	1,096	2,403
41 Rutgers the State University of New Jersey, all campuses	Public	214	76	25	10	85
42 California Institute of Technology	Private	212	195	—	6	8
43 Michigan State University	Public	208	90	37	8	65
44 University of Iowa	Public	207	123	5	21	48
45 Indiana University, all campuses	Public	195	102	2	5	69
46 Emory University	Private	189	133	4	8	19
47 Case Western Reserve University	Private	182	140	3	6	17
48 University of Rochester	Private	177	133	8	18	7
49 University of Illinois at Chicago	Public	175	86	6	10	59
50 University of Kentucky, all campuses	Public	174	66	11	15	79
Top 50 institutions		15,586	9,416	1,015	1,203	2,858
1,092						

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-4.

R&D expenditures at the top 100 academic institutions, by source of funds: 1999
 (Millions of current dollars)

Rank and academic institution	Institution type	Source of funds					All other sources
		Total	Federal Government	State/local government	Industry	Academic institutions	
51 Virginia Polytechnic Institute and State University	Public	169	75	37	13	40	4
52 New York University	Private	167	111	1	8	18	30
53 SUNY at Buffalo, all campuses	Public	167	85	5	5	42	29
54 University of Texas Southwestern Medical Center Dallas	Public	166	102	5	16	1	41
55 University of Chicago	Private	163	136	—	2	9	16
56 Iowa State University	Public	161	54	48	15	41	3
57 University of Tennessee system	Public	159	70	29	15	30	14
58 University of Virginia, all campuses	Public	157	108	6	13	16	14
59 University of Hawaii at Manoa	Public	157	93	35	13	15	0
60 University of Texas M.D. Anderson Cancer Center	Public	155	69	0	0	51	35
Top 60 institutions		17,207	10,322	1,182	1,303	3,121	1,277
61 University of Utah	Public	154	112	2	9	23	8
62 University of Cincinnati, all campuses	Public	153	100	4	6	33	10
63 Colorado State University	Public	150	92	17	7	34	—
64 Vanderbilt University	Private	150	117	—	4	15	14
65 University of Missouri, Columbia	Public	149	54	17	4	68	7
66 SUNY at Stony Brook, all campuses	Public	149	94	3	7	38	6
67 Wayne State University	Public	147	58	13	11	49	17
68 Carnegie Mellon University	Private	142	90	18	18	9	7
69 University of Oklahoma, all campuses	Public	142	58	16	8	45	16
70 University of California-Irvine	Public	142	76	4	17	28	17
Top 70 institutions		18,685	11,172	1,276	1,393	3,464	1,379
71 Boston University	Private	141	123	1	8	0	9
72 University of Maryland at Baltimore	Public	141	85	24	12	9	11
73 University of Miami	Private	140	102	1	16	6	14
74 Oregon State University	Public	139	82	29	—	24	4
75 University of Connecticut, all campuses	Public	135	55	10	10	48	11
76 University of Kansas, all campuses	Public	133	57	11	14	36	13
77 University of Nebraska at Lincoln	Public	131	37	4	5	78	7
78 Mount Sinai School of Medicine	Private	128	85	3	9	16	15
79 University of Medicine and Dentistry of New Jersey	Public	126	62	8	11	35	10
80 Princeton University	Private	124	73	2	6	29	14
Top 80 institutions		20,023	11,932	1,370	1,484	3,746	1,488
81 University of South Florida	Public	124	42	7	6	57	11
82 Rockefeller University	Private	122	45	2	3	40	31
83 University of New Mexico, all campuses	Public	116	85	2	3	22	4
84 Oregon Health Sciences University	Public	112	76	3	8	15	9
85 Yeshiva University	Private	112	90	0	0	21	1
86 Georgetown University	Private	111	84	—	8	12	7
87 Mississippi State University	Public	111	47	26	8	30	0
88 Arizona State University	Public	107	54	2	4	44	3
89 University of South Carolina	Public	106	48	4	2	47	4
90 University of Texas Health Science Center Houston	Public	105	71	2	13	6	13
Top 90 institutions		21,149	12,574	1,420	1,539	4,041	1,572

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-4.

R&D expenditures at the top 100 academic institutions, by source of funds: 1999
 (Millions of current dollars)

Rank and academic institution	Institution type	Source of funds					All other sources
		Total	Federal Government	State/local government	Industry	Academic institutions	
91 University of California-Santa Barbara	Public	105	74	2	5	16	8
92 Tufts University	Private	102	64	—	7	20	10
93 Clemson University	Public	99	27	21	8	38	4
94 Florida State University	Public	98	56	2	1	37	2
95 Washington State University	Public	97	45	4	3	35	11
96 Utah State University	Public	95	54	17	4	17	4
97 University of Texas Medical Branch at Galveston	Public	94	55	10	6	11	11
98 University of Alaska Fairbanks	Public	89	35	4	19	31	—
99 University of Texas Health Science Center San Antonio	Public	88	57	7	11	8	6
100 Tulane University	Private	87	51	3	12	18	4
Top 100 institutions		22,102	13,091	1,488	1,616	4,271	1,632

— = less than \$1 million

^aThese figures exclude the Applied Physics Laboratory (APL) at Johns Hopkins University, which, although not officially classified as a federally funded research and development center, essentially functions as one and performs almost as much R&D as performed at the university. APL is included as a separate entry to provide a better measure of the distribution of academic R&D dollars and the ranking of individual institutions.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Academic Science and Engineering R&D Expenditures: Fiscal Year 1999, Detailed Statistical Tables*, NSF 01-329 (Arlington, VA, 2001); and NSF, unpublished tabulations.

Appendix table 5-5.

**Expenditure allocation among instruction, research, and public service at academic institutions,
by type of control: 1977–96**

Year	Private academic institutions				Public academic institutions			
	Instruction, research, and public service		Instruction	Research	Instruction, research, and public service		Instruction	Research
	Millions of current dollars							
1977	5,234	3,776	1,279	179	13,307	9,975	2,274	1,058
1978	5,694	4,132	1,369	192	14,517	10,895	2,493	1,129
1979	6,275	4,538	1,522	215	15,950	11,817	2,862	1,270
1980	7,084	5,110	1,712	262	17,795	13,034	3,308	1,453
1981	7,966	5,815	1,863	287	19,890	14,531	3,713	1,646
1982	8,855	6,549	1,956	350	21,623	15,987	3,897	1,739
1983	9,599	7,156	2,051	393	23,040	17,078	4,135	1,826
1984	10,416	7,782	2,207	427	24,630	18,212	4,437	1,982
1985	11,446	8,437	2,484	524	27,079	19,872	4,964	2,243
1986	12,460	9,092	2,786	582	29,362	21,401	5,522	2,440
1987	14,175	10,290	3,152	733	31,525	22,823	6,051	2,651
1988	15,120	10,877	3,432	810	34,222	24,462	6,823	2,937
1989	16,537	11,938	3,712	887	37,374	26,470	7,609	3,294
1990	17,937	12,898	4,039	1,000	40,857	28,878	8,338	3,641
1991	19,441	14,170	4,173	1,097	43,722	30,682	9,127	3,913
1992	20,884	15,262	4,401	1,221	46,669	32,602	9,816	4,251
1993	22,381	16,203	4,780	1,398	49,026	34,058	10,476	4,493
1994	23,807	17,227	5,041	1,540	51,144	35,417	11,051	4,676
1995	25,384	18,293	5,392	1,699	54,124	37,432	11,696	4,995
1996	26,545	19,188	5,555	1,803	56,113	38,769	12,041	5,302
Millions of constant 1996 dollars								
1977	11,626	8,387	2,841	397	29,558	22,157	5,051	2,350
1978	11,805	8,568	2,839	398	30,100	22,591	5,169	2,340
1979	12,010	8,685	2,914	411	30,527	22,617	5,478	2,431
1980	12,419	8,959	3,001	459	31,197	22,850	5,800	2,547
1981	12,772	9,324	2,988	461	31,890	23,298	5,952	2,639
1982	13,367	9,886	2,953	528	32,639	24,131	5,883	2,625
1983	13,936	10,388	2,977	570	33,449	24,794	6,004	2,651
1984	14,580	10,894	3,089	597	34,477	25,492	6,211	2,774
1985	15,532	11,449	3,371	712	36,747	26,967	6,737	3,044
1986	16,545	12,072	3,700	772	38,989	28,417	7,332	3,239
1987	18,272	13,264	4,063	944	40,636	29,419	7,800	3,418
1988	18,850	13,561	4,279	1,010	42,665	30,498	8,506	3,662
1989	19,860	14,336	4,458	1,065	44,882	31,788	9,138	3,956
1990	20,734	14,909	4,669	1,156	47,227	33,381	9,638	4,209
1991	21,683	15,804	4,654	1,224	48,764	34,220	10,180	4,364
1992	22,739	16,618	4,792	1,329	50,816	35,499	10,688	4,629
1993	23,797	17,228	5,083	1,487	52,128	36,212	11,139	4,777
1994	24,797	17,943	5,250	1,604	53,269	36,889	11,510	4,870
1995	25,875	18,647	5,496	1,732	55,172	38,157	11,923	5,092
1996	26,545	19,188	5,555	1,803	56,113	38,769	12,041	5,302

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-5.

**Expenditure allocation among instruction, research, and public service at academic institutions,
by type of control: 1977–96**

Year	Private academic institutions				Public academic institutions			
	Instruction, research, and public service		Instruction	Research	Instruction, research, and public service		Instruction	Research
	Percent							
1977	100	72	24	3	100	75	17	8
1978	100	73	24	3	100	75	17	8
1979	100	72	24	3	100	74	18	8
1980	100	72	24	4	100	73	19	8
1981	100	73	23	4	100	73	19	8
1982	100	74	22	4	100	74	18	8
1983	100	75	21	4	100	74	18	8
1984	100	75	21	4	100	74	18	8
1985	100	74	22	5	100	73	18	8
1986	100	73	22	5	100	73	19	8
1987	100	73	22	5	100	72	19	8
1988	100	72	23	5	100	71	20	9
1989	100	72	22	5	100	71	20	9
1990	100	72	23	6	100	71	20	9
1991	100	73	21	6	100	70	21	9
1992	100	73	21	6	100	70	21	9
1993	100	72	21	6	100	69	21	9
1994	100	72	21	6	100	69	22	9
1995	100	72	21	7	100	69	22	9
1996	100	72	21	7	100	69	21	9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System Finance Survey, special tabulations.

See figure 5-8 in volume I.

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Appendix table 5-6.

Expenditure allocation among instruction, research, and public service at academic institutions, by type of control and selected Carnegie classification: 1977–96
 (Millions of current dollars)

Year	Private academic institutions				Public academic institutions			
	Research I	Research II	Doctorate-granting I	Doctorate-granting II	Research I	Research II	Doctorate-granting I	Doctorate-granting II
			Instruction					
1977	1,283	215	255	206	2,941	744	529	492
1978	1,387	240	283	235	3,223	820	558	533
1979	1,522	260	308	255	3,548	894	619	576
1980	1,755	294	334	278	3,940	984	669	647
1981	2,007	327	378	326	4,359	1,105	734	730
1982	2,287	366	415	360	4,772	1,228	803	797
1983	2,503	409	445	399	5,056	1,329	851	865
1984	2,705	442	483	435	5,390	1,398	905	923
1985	2,935	479	516	471	5,927	1,537	979	1,002
1986	3,208	520	541	509	6,444	1,624	1,056	1,081
1987	3,792	579	582	537	6,928	1,692	1,157	1,160
1988	3,914	622	625	587	7,330	1,867	1,223	1,244
1989	4,333	683	680	637	7,885	2,008	1,280	1,347
1990	4,664	753	730	686	8,509	2,179	1,373	1,458
1991	5,141	813	771	768	9,012	2,317	1,504	1,564
1992	5,554	880	809	847	9,533	2,416	1,542	1,627
1993	5,949	910	843	896	9,859	2,497	1,604	1,700
1994	6,337	951	930	962	10,180	2,584	1,733	1,747
1995	6,735	1,005	994	1,028	10,870	2,755	1,807	1,827
1996	6,890	956	1,061	1,042	11,235	2,815	1,864	1,929
Research								
1977	980	60	39	46	1,605	281	36	101
1978	1,050	66	38	49	1,767	295	37	129
1979	1,159	72	47	50	1,991	339	46	144
1980	1,299	80	49	56	2,292	387	50	166
1981	1,409	93	51	57	2,587	442	55	176
1982	1,486	100	54	63	2,750	468	53	188
1983	1,565	106	50	65	2,947	477	54	194
1984	1,683	115	52	72	3,154	496	62	214
1985	1,904	125	61	79	3,547	547	80	224
1986	2,121	138	62	92	3,948	601	98	249
1987	2,417	147	72	96	4,302	625	140	271
1988	2,588	171	77	108	4,789	714	166	333
1989	2,775	179	84	120	5,339	801	156	387
1990	3,016	195	100	126	5,843	887	173	431
1991	3,136	207	103	150	6,347	960	217	486
1992	3,306	214	112	174	6,832	995	233	525
1993	3,568	232	117	198	7,245	1,042	263	573
1994	3,745	237	127	204	7,597	1,102	274	619
1995	4,034	249	129	208	7,963	1,167	295	663
1996	4,142	261	149	206	8,163	1,201	315	711

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-6.

Expenditure allocation among instruction, research, and public service at academic institutions, by type of control and selected Carnegie classification: 1977–96
 (Millions of current dollars)

Year	Private academic institutions				Public academic institutions			
	Research I	Research II	Doctorate-	Doctorate-	Research I	Research II	Doctorate-	Doctorate-
			granting I	granting II			granting I	granting II
Public service								
1977	980	60	39	46	1,605	281	36	101
1978	1,050	66	38	49	1,767	295	37	129
1979	1,159	72	47	50	1,991	339	46	144
1980	1,299	80	49	56	2,292	387	50	166
1981	1,409	93	51	57	2,587	442	55	176
1982	1,486	100	54	63	2,750	468	53	188
1983	1,565	106	50	65	2,947	477	54	194
1984	1,683	115	52	72	3,154	496	62	214
1985	1,904	125	61	79	3,547	547	80	224
1986	2,121	138	62	92	3,948	601	98	249
1987	2,417	147	72	96	4,302	625	140	271
1988	2,588	171	77	108	4,789	714	166	333
1989	2,775	179	84	120	5,339	801	156	387
1990	3,016	195	100	126	5,843	887	173	431
1991	3,136	207	103	150	6,347	960	217	486
1992	3,306	214	112	174	6,832	995	233	525
1993	3,568	232	117	198	7,245	1,042	263	573
1994	3,745	237	127	204	7,597	1,102	274	619
1995	4,034	249	129	208	7,963	1,167	295	663
1996	4,142	261	149	206	8,163	1,201	315	711

SOURCE: U.S. Department of Education, National Center for Education Statistics Integrated Postsecondary Education Data System Finance Survey, special tabulations.

See figure 5-9 in volume I.

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Appendix table 5-7.

Total, Federal, and non-Federal R&D expenditures at academic institutions, by field and source of funds: 1999

Field	Total R&D		Millions of dollars		Percent	
	Millions of dollars	Percent	Federal	Non-Federal ^a	Federal	Non-Federal ^a
Total S&E	27,489.1	100.0	16,046.8	11,442	58.4	41.6
Total sciences	23,231.9	84.5	13,608.5	9,623	58.6	41.4
Physical sciences	2,599.7	9.5	1,859.5	740	71.5	28.5
Astronomy	389.3	1.4	277.2	112	71.2	28.8
Chemistry	915.1	3.3	615.5	300	67.3	32.7
Physics	1,142.3	4.2	862.1	280	75.5	24.5
Other	153.0	0.6	104.7	48	68.5	31.5
Mathematics	312.7	1.1	209.1	104	66.9	33.1
Computer sciences	860.0	3.1	582.2	278	67.7	32.3
Environmental sciences	1,689.6	6.1	1,100.7	589	65.1	34.9
Atmospheric sciences	288.0	1.0	222.5	66	77.3	22.7
Earth sciences	543.9	2.0	320.2	224	58.9	41.1
Ocean sciences	601.8	2.2	403.7	198	67.1	32.9
Other	255.8	0.9	154.3	102	60.3	39.7
Life sciences	15,591.3	56.7	8,920.2	6,671	57.2	42.8
Agricultural sciences	2,031.4	7.4	545.6	1,486	26.9	73.1
Biological sciences	5,012.5	18.2	3,203.3	1,809	63.9	36.1
Medical sciences	7,990.9	29.1	4,848.1	3,143	60.7	39.3
Other	556.5	2.0	323.2	233	58.1	41.9
Psychology	464.9	1.7	310.1	155	66.7	33.3
Social sciences	1,262.0	4.6	472.3	790	37.4	62.6
Economics	270.0	1.0	90.0	180	33.3	66.7
Political science	201.2	0.7	53.8	147	26.7	73.3
Sociology	269.9	1.0	119.4	150	44.2	55.8
Other	521.0	1.9	209.2	312	40.2	59.8
Other sciences	451.8	1.6	154.3	298	34.1	65.9
Total engineering	4,257.1	15.5	2,438.3	1,819	57.3	42.7
Aeronautical/astronautical	260.3	0.9	182.9	77	70.3	29.7
Bioengineering/biomedical	137.0	0.5	72.3	65	52.8	47.2
Chemical	349.7	1.3	179.4	170	51.3	48.7
Civil	528.8	1.9	216.2	313	40.9	59.1
Electrical/electronic	1,019.7	3.7	651.6	368	63.9	36.1
Mechanical	625.4	2.3	387.8	238	62.0	38.0
Materials	384.8	1.4	218.0	167	56.6	43.4
Other	951.3	3.5	530.1	421	55.7	44.3

^aSee appendix table 5-2 for detail on non-Federal sources.SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Academic Science and Engineering R&D Expenditures: Fiscal Year 1999*, Detailed Statistical Tables, NSF 01-329 (Arlington, VA, 2001); and NSF, unpublished tabulations.

Appendix table 5-8.

Percentage of academic R&D funds provided by the Federal Government, by field: 1973–99

Field	1973	1976	1979	1982	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total S&E	68.8	67.4	67.1	65.1	62.6	60.9	60.0	59.2	58.2	58.9	59.9	60.2	60.1	60.1	58.8	58.6	58.4
Total sciences	68.5	67.4	66.8	64.8	62.8	61.3	60.4	59.5	58.6	59.3	60.1	60.3	60.2	60.0	58.8	58.7	58.6
Physical sciences	81.8	80.5	81.5	78.9	77.5	74.5	72.7	72.8	71.4	71.8	71.0	71.8	72.6	72.2	71.1	71.0	71.5
Astronomy	73.4	69.8	74.8	70.6	67.0	66.1	64.0	66.1	64.4	66.5	63.8	67.7	68.2	66.1	63.7	62.1	71.2
Chemistry	76.1	77.0	75.8	74.7	74.2	71.3	69.6	68.7	67.3	68.1	68.2	68.2	69.1	69.1	67.3	67.0	67.3
Physics	87.1	85.3	86.5	83.5	82.2	78.4	77.1	77.5	77.1	76.9	75.3	76.0	77.0	76.7	76.2	75.9	75.5
Other	79.7	77.2	82.7	81.2	75.1	74.7	69.5	71.8	66.4	67.7	70.3	70.8	70.8	71.0	71.0	74.7	68.5
Mathematics	77.5	77.4	77.6	74.5	75.9	75.4	73.3	72.6	74.1	74.0	74.6	72.8	73.5	72.2	69.8	69.0	66.9
Computer sciences	69.9	74.0	70.9	74.2	69.7	70.8	68.5	66.5	67.0	68.4	69.7	71.5	70.9	72.7	71.3	68.8	67.7
Environmental sciences	75.2	73.4	72.6	70.1	67.2	65.9	64.8	63.8	62.7	63.7	66.0	67.6	67.1	67.6	66.3	66.3	65.1
Atmospheric sciences	NA	NA	NA	79.9	79.8	81.2	77.9	75.7	74.1	72.1	76.3	79.4	78.6	78.4	78.3	77.8	77.3
Earth sciences	NA	NA	NA	64.9	60.7	59.3	57.7	57.7	56.7	57.7	58.5	59.5	59.8	60.0	59.8	60.7	58.9
Ocean sciences	NA	NA	NA	77.4	72.7	71.6	72.5	69.4	67.6	71.7	72.0	71.0	70.0	69.6	66.2	66.4	67.1
Other	75.2	73.4	72.6	53.5	53.9	49.8	48.1	51.0	52.9	51.5	58.4	66.6	65.3	67.1	66.9	65.1	60.3
Life sciences	66.3	65.7	64.1	62.4	60.4	59.6	59.3	58.3	57.2	58.0	58.9	58.8	58.4	58.2	57.1	57.0	57.2
Agricultural sciences ...	34.1	29.7	30.2	29.5	29.4	27.4	27.3	26.1	25.9	27.6	28.9	29.7	29.3	29.3	27.9	26.7	26.9
Biological sciences	71.6	73.5	72.6	71.4	67.9	66.8	65.8	64.5	63.7	64.7	65.3	65.7	64.9	64.7	64.2	64.0	63.9
Medical sciences	75.3	75.5	73.7	72.0	68.0	65.5	65.5	64.3	62.7	62.7	63.3	62.7	63.0	63.0	61.2	60.9	60.7
Other	70.3	72.6	70.1	64.0	60.0	61.7	61.0	59.1	60.0	58.2	59.3	58.8	56.7	58.0	56.8	55.7	58.1
Psychology	79.5	76.2	72.3	68.1	66.9	65.9	65.5	64.8	65.8	65.4	67.0	67.1	67.2	67.7	68.5	67.3	66.7
Social sciences	57.3	52.7	53.0	45.6	40.1	34.2	33.5	32.2	33.7	34.5	37.7	37.6	38.1	38.6	36.3	37.6	37.4
Economics	47.6	44.5	48.4	43.7	37.0	30.2	29.1	27.1	28.6	29.8	33.4	31.4	32.0	33.4	34.6	35.3	33.3
Political science	40.6	42.2	46.0	37.3	33.1	29.0	25.0	22.0	22.8	24.7	28.3	31.1	34.5	34.6	29.5	30.3	26.7
Sociology	65.8	62.1	63.4	58.5	53.5	44.1	45.2	45.5	46.3	50.1	49.7	49.1	48.6	51.6	46.6	47.1	44.2
Other	61.0	54.8	52.2	42.8	38.5	34.4	34.9	33.9	35.5	34.2	38.4	38.4	37.8	36.4	34.1	36.5	40.2
Other sciences	58.7	59.5	54.9	56.5	49.3	41.9	40.1	41.1	33.8	32.4	35.1	37.0	44.9	41.5	40.7	38.4	34.1
Total engineering	71.5	67.3	68.7	67.2	61.2	58.7	57.8	57.4	56.4	57.2	58.9	59.4	59.8	60.2	58.7	57.8	57.3
Aeronautical/astronautical	NA	NA	NA	79.1	76.4	76.3	77.5	77.7	76.4	76.7	75.2	76.1	76.2	73.5	74.2	68.4	70.3
Bioengineering/biomedical	NA	61.9	55.5	52.8													
Chemical	NA	NA	NA	62.0	55.6	52.6	52.1	50.6	48.4	48.4	52.2	54.0	54.2	54.8	52.4	51.8	51.3
Civil	NA	NA	NA	51.5	51.5	45.6	41.7	41.2	39.3	42.3	41.6	40.6	43.2	43.5	42.4	39.8	40.9
Electrical/electronic	NA	NA	NA	77.1	67.7	64.9	65.0	65.1	64.2	63.9	65.7	65.8	66.4	67.6	66.0	66.4	63.9
Mechanical	NA	NA	NA	68.3	64.6	63.5	62.4	61.0	59.7	59.7	64.2	65.3	65.2	64.5	62.3	61.8	62.0
Materials	NA	50.9	50.4	48.7	50.3	50.2	53.2	54.5	57.2	56.6	56.6						
Other	71.5	67.3	68.7	65.3	57.3	54.9	53.6	54.6	54.8	57.6	58.9	60.1	58.4	59.7	55.8	55.4	55.7

NA = not available

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Academic Science and Engineering R&D Expenditures: Fiscal Year 1999, Detailed Statistical Tables*, NSF 01-329 (Arlington, VA, 2001); and NSF, unpublished tabulations.

Appendix table 5-9.
Expenditures for academic R&D, by field: 1973–99

Field	1973	1976	1979	1982	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
Millions of current dollars																		
Total S&E	2,884	3,729	5,366	7,324	9,687	13,463	14,976	16,285	17,584	18,818	19,951	21,020	22,161	23,035	24,338	25,837	27,489	
Total sciences	2,551	3,297	4,591	6,296	8,269	11,367	12,584	13,629	14,677	15,755	16,795	17,665	18,647	19,328	20,491	21,768	23,232	
Physical sciences	328	379	602	824	1,148	1,554	1,647	1,807	1,939	2,055	2,130	2,176	2,254	2,256	2,362	2,483	2,600	
Astronomy	24	26	48	73	96	127	137	170	211	238	259	267	304	276	287	302	389	
Chemistry	114	140	206	308	422	565	606	648	671	705	740	759	771	801	819	878	915	
Physics	167	183	292	367	551	740	786	842	881	921	940	956	989	987	1,051	1,077	1,142	
Other	23	30	55	75	80	122	117	147	176	191	191	193	191	193	204	226	153	
Mathematics	37	42	78	96	128	199	215	222	230	248	272	282	279	288	289	310	313	
Computer sciences	36	45	98	164	281	408	473	515	554	555	608	646	682	690	709	746	860	
Environmental sciences	209	289	453	558	705	894	1,003	1,068	1,117	1,242	1,319	1,396	1,433	1,488	1,523	1,623	1,690	
Atmospheric sciences	NA	NA	NA	87	108	138	165	173	175	194	210	203	208	224	237	269	288	
Earth sciences	NA	NA	NA	195	254	294	324	354	384	413	417	455	456	445	449	512	544	
Ocean sciences	NA	NA	NA	198	258	333	359	377	390	427	458	455	473	533	537	546	602	
Other	209	289	453	78	86	128	156	163	169	207	234	283	295	285	301	296	256	
Life sciences	1,530	2,102	2,834	4,014	5,279	7,257	8,061	8,726	9,472	10,196	10,851	11,465	12,185	12,712	13,586	14,583	15,591	
Agricultural sciences...	277	413	599	864	999	1,176	1,282	1,349	1,458	1,512	1,558	1,661	1,814	1,910	1,966	1,995	2,031	
Biological sciences	557	711	912	1,287	1,781	2,408	2,640	2,859	3,064	3,304	3,536	3,708	3,833	3,908	4,179	4,573	5,013	
Medical sciences	646	897	1,247	1,739	2,318	3,377	3,819	4,154	4,546	4,964	5,324	5,639	6,070	6,391	6,908	7,466	7,991	
Other	51	81	76	123	181	296	321	363	404	417	433	457	468	503	534	549	557	
Psychology	74	78	100	130	158	213	234	253	283	329	350	358	370	381	396	445	465	
Social sciences	231	262	293	354	383	552	633	703	750	815	896	953	1,018	1,096	1,119	1,130	1,262	
Economics	48	65	83	95	118	163	187	201	209	222	231	243	250	271	259	261	270	
Political science	26	28	45	60	59	87	103	115	125	142	151	161	173	180	175	175	201	
Sociology	62	66	73	80	75	108	119	132	156	163	183	196	215	230	255	252	270	
Other	96	102	92	119	131	194	224	255	260	288	331	354	380	415	429	442	521	
Other sciences	106	101	133	156	186	290	318	336	332	315	368	389	426	418	507	448	452	
Total engineering	333	432	776	1,028	1,418	2,096	2,392	2,657	2,907	3,062	3,156	3,355	3,515	3,707	3,847	4,069	4,257	
Aeronautical/astrophysical	NA	NA	NA	62	81	123	148	164	180	197	213	217	241	233	247	250	260	
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77	102	137	
Chemical	NA	NA	NA	89	116	163	194	218	244	261	274	279	297	317	317	327	350	
Civil	NA	NA	NA	116	153	224	245	284	315	340	371	403	431	455	472	495	529	
Electrical/electronic	NA	NA	NA	218	337	509	595	663	679	704	698	745	819	888	951	1,042	1,020	
Mechanical	NA	NA	NA	143	208	304	343	391	421	451	483	502	521	519	517	568	625	
Materials	NA	NA	NA	NA	NA	NA	NA	274	304	294	299	310	330	349	389	391	385	
Other	333	432	776	399	523	774	867	663	764	817	818	899	877	946	878	894	951	

See explanatory notes, if any, and SOURCE at end of tables.

Appendix table 5-9.
Expenditures for academic R&D, by field: 1973–99

Field	1973	1976	1979	1982	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Millions of constant 1996 dollars^a																	
Total S&E	8,583	8,816	10,270	11,055	13,146	16,785	17,985	18,825	19,612	20,490	21,213	21,893	22,591	23,035	23,873	25,031	26,238
Total sciences	7,592	7,795	8,786	9,503	11,222	14,171	15,112	15,754	16,370	17,155	17,857	18,399	19,008	19,328	20,099	21,089	22,174
Physical sciences	977	897	1,152	1,244	1,558	1,938	1,978	2,089	2,162	2,238	2,265	2,266	2,298	2,256	2,316	2,405	2,481
Astronomy	72	62	93	110	130	158	165	197	235	259	275	278	309	276	282	293	372
Chemistry	338	331	395	466	572	705	728	749	748	767	787	791	785	801	804	850	873
Physics	497	433	560	554	748	922	944	973	983	1,003	1,000	996	1,008	987	1,031	1,044	1,090
Other	70	71	105	114	108	153	141	170	196	208	203	201	195	193	200	219	146
Mathematics	110	100	149	146	173	248	258	256	257	270	289	293	284	288	284	300	298
Computer sciences	106	105	187	247	381	509	568	595	618	605	646	673	695	690	695	723	821
Environmental sciences	623	682	867	842	957	1,114	1,205	1,234	1,246	1,352	1,402	1,454	1,461	1,488	1,494	1,573	1,613
Atmospheric sciences	NA	NA	NA	131	147	172	198	200	195	211	224	212	212	224	232	261	275
Earth sciences	NA	NA	NA	294	344	367	389	410	429	450	443	474	465	445	440	496	519
Ocean sciences	NA	NA	NA	299	350	415	431	436	435	465	487	474	482	533	526	529	574
Other	623	682	867	118	116	160	187	188	188	226	249	295	301	285	295	287	244
Life sciences	4,553	4,969	5,423	6,058	7,164	9,048	9,680	10,086	10,564	11,102	11,538	11,942	12,421	12,712	13,326	14,128	14,881
Agricultural sciences	824	976	1,145	1,305	1,356	1,466	1,540	1,560	1,627	1,646	1,657	1,730	1,849	1,910	1,928	1,933	1,939
Biological sciences	1,657	1,680	1,746	1,943	2,417	3,002	3,170	3,305	3,417	3,598	3,760	3,862	3,907	3,908	4,099	4,430	4,784
Medical sciences	1,922	2,121	2,386	2,625	3,146	4,210	4,586	4,802	5,071	5,405	5,661	5,873	6,188	6,391	6,776	7,233	7,627
Other	150	191	146	186	245	369	385	420	450	454	460	476	477	503	524	532	531
Psychology	219	184	191	197	215	266	281	292	316	358	372	373	378	381	388	431	444
Social sciences	688	620	561	534	520	688	761	813	836	888	953	993	1,038	1,096	1,097	1,095	1,205
Economics	142	155	160	144	160	203	224	232	233	241	246	253	255	271	254	253	258
Political science	76	67	85	91	81	108	124	133	139	155	161	167	176	180	172	170	192
Sociology	183	157	140	120	101	135	143	152	174	178	195	204	219	230	250	244	258
Other	287	242	176	179	178	242	269	295	290	314	352	369	388	415	421	428	497
Other sciences	315	238	255	235	253	361	382	388	370	343	392	405	434	418	498	434	431
Total engineering	991	1,021	1,484	1,552	1,924	2,613	2,873	3,071	3,242	3,335	3,355	3,494	3,583	3,707	3,774	3,942	4,063
Aeronautical/astronautical	NA	NA	NA	94	109	153	178	189	201	214	226	226	246	233	243	242	248
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75	99	131
Chemical	NA	NA	NA	135	158	203	233	252	272	284	291	290	303	317	311	317	334
Civil	NA	NA	NA	175	208	279	294	329	351	370	395	420	439	455	463	479	505
Electrical/electronic	NA	NA	NA	330	458	635	714	766	757	766	742	776	834	888	933	1,010	973
Mechanical	NA	NA	NA	215	282	378	412	452	469	491	513	523	531	519	507	550	597
Materials	NA	NA	NA	NA	NA	NA	NA	316	339	320	318	323	336	349	381	379	367
Other	991	1,021	1,484	603	710	965	1,041	767	852	890	870	936	894	946	861	866	908

See explanatory notes, if any, and SOURCE at end of tables.

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Appendix table 5-9.
Expenditures for academic R&D, by field: 1973–99

Field	1973	1976	1979	1982	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
Percent																		
Total S&E	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Total sciences	88.4	88.4	85.5	86.0	85.4	84.4	84.0	83.7	83.5	83.7	84.2	84.0	84.1	83.9	84.2	84.3	84.5	
Physical sciences	11.4	10.2	11.2	11.3	11.9	11.5	11.0	11.1	11.0	10.9	10.7	10.4	10.2	9.8	9.7	9.6	9.5	
Astronomy	0.8	0.7	0.9	1.0	1.0	0.9	0.9	1.0	1.2	1.3	1.3	1.3	1.4	1.2	1.2	1.2	1.4	
Chemistry	3.9	3.8	3.8	4.2	4.4	4.2	4.0	4.0	3.8	3.7	3.7	3.6	3.5	3.5	3.4	3.4	3.3	
Physics	5.8	4.9	5.4	5.0	5.7	5.5	5.2	5.2	5.0	4.9	4.7	4.6	4.5	4.3	4.3	4.2	4.2	
Other	0.8	0.8	1.0	1.0	0.8	0.9	0.8	0.9	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.9	0.6	
Mathematics	1.3	1.1	1.5	1.3	1.3	1.5	1.4	1.4	1.3	1.3	1.4	1.3	1.3	1.3	1.2	1.2	1.1	
Computer sciences	1.2	1.2	1.8	2.2	2.9	3.0	3.2	3.2	3.2	3.0	3.0	3.1	3.1	3.0	2.9	2.9	3.1	
Environmental sciences	7.3	7.7	8.4	7.6	7.3	6.6	6.7	6.6	6.4	6.6	6.6	6.5	6.5	6.3	6.3	6.1		
Atmospheric sciences	NA	NA	NA	1.2	1.1	1.0	1.1	1.1	1.0	1.0	1.1	1.0	0.9	1.0	1.0	1.0	1.0	
Earth sciences	NA	NA	NA	2.7	2.6	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	1.9	1.8	2.0	2.0	
Ocean sciences	NA	NA	NA	2.7	2.7	2.5	2.4	2.3	2.2	2.3	2.3	2.2	2.1	2.3	2.2	2.1	2.2	
Other	7.3	7.7	8.4	1.1	0.9	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.3	1.2	1.2	1.1	0.9	
Life sciences	53.0	56.4	52.8	54.8	54.5	53.9	53.8	53.6	53.9	54.2	54.4	54.5	55.0	55.2	55.8	56.4	56.7	
Agricultural sciences	9.6	11.1	11.2	11.8	10.3	8.7	8.6	8.3	8.3	8.0	7.8	7.9	8.2	8.3	8.1	7.7	7.4	
Biological sciences	19.3	19.1	17.0	17.6	18.4	17.9	17.6	17.6	17.4	17.6	17.7	17.6	17.3	17.0	17.2	17.7	18.2	
Medical sciences	22.4	24.1	23.2	23.7	23.9	25.1	25.5	25.5	25.9	26.4	26.7	26.8	27.4	27.7	28.4	28.9	29.1	
Other	1.8	2.2	1.4	1.7	1.9	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.0	
Psychology	2.6	2.1	1.9	1.8	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.7	1.7	1.7	1.6	1.7	1.7	
Social sciences	8.0	7.0	5.5	4.8	4.0	4.1	4.2	4.3	4.3	4.3	4.5	4.5	4.6	4.8	4.6	4.4	4.6	
Economics	1.7	1.8	1.6	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.1	1.0	1.0	
Political science	0.9	0.8	0.8	0.8	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	
Sociology	2.1	1.8	1.4	1.1	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	
Other	3.3	2.7	1.7	1.6	1.4	1.4	1.5	1.6	1.5	1.5	1.7	1.7	1.7	1.8	1.8	1.7	1.9	
Other sciences	3.7	2.7	2.5	2.1	1.9	2.2	2.1	2.1	1.9	1.7	1.8	1.8	1.9	1.8	2.1	1.7	1.6	
Total engineering	11.6	11.6	14.5	14.0	14.6	15.6	16.0	16.3	16.5	16.3	15.8	16.0	15.9	16.1	15.8	15.7	15.5	
Aeronautical/astrophysical	NA	NA	NA	0.9	0.8	0.9	1.0	1.0	1.0	1.0	1.1	1.0	1.1	1.0	1.0	1.0	0.9	
Bioengineering/biomedical	NA	0.3	0.4	0.5														
Chemical	NA	NA	NA	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.4	1.3	1.3	1.3	
Civil	NA	NA	NA	1.6	1.6	1.7	1.6	1.7	1.8	1.8	1.9	1.9	1.9	2.0	1.9	1.9	1.9	
Electrical/electronic	NA	NA	NA	3.0	3.5	3.8	4.0	4.1	3.9	3.7	3.5	3.5	3.7	3.9	3.9	4.0	3.7	
Mechanical	NA	NA	NA	1.9	2.1	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.1	2.2	2.3	
Materials	NA	NA	NA	NA	NA	NA	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.4	
Other	11.6	11.6	14.5	5.5	5.4	5.8	5.8	4.1	4.3	4.3	4.1	4.3	4.0	4.1	3.6	3.5	3.5	

NA = not available

^aSee appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 1996 dollars.SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Academic Science and Engineering R&D Expenditures: Fiscal Year 1999, Detailed Statistical Tables*, NSF 01-329 (Arlington, VA: 2001); and NSF, unpublished tabulations.

See figures 5-10 and 5-11 in Volume 1.

Appendix table 5-10.

Federal obligations for academic R&D, by agency: 1970–2001

Year	All agencies	National Institutes of Health ^a	National Science Foundation	Department of Defense	National Aeronautics and Space Administration	Department of Energy ^b	Department of Agriculture	All other agencies
Millions of current dollars								
1970	1,476	518	228	216	131	100	65	217
1971	1,645	603	267	211	134	94	72	264
1972	1,904	756	362	217	119	85	87	277
1973	1,917	761	374	204	111	83	94	289
1974	2,214	1,027	389	197	99	94	95	312
1975	2,411	1,077	435	203	108	132	108	348
1976	2,552	1,185	437	240	119	145	120	307
1977	2,905	1,311	511	273	118	188	140	364
1978	3,375	1,493	537	383	127	240	186	408
1979	3,889	1,880	617	438	139	260	200	355
1980	4,263	2,012	685	495	158	285	216	412
1981	4,466	2,101	702	573	171	300	243	376
1982	4,605	2,140	715	664	186	277	255	369
1983	4,966	2,392	783	724	189	297	275	306
1984	5,547	2,715	880	830	204	321	261	335
1985	6,340	3,158	1,002	940	237	357	293	352
1986	6,559	3,243	992	1,098	254	345	274	355
1987	7,337	3,903	1,096	1,017	294	386	280	361
1988	7,828	4,199	1,143	1,071	338	406	305	366
1989	8,672	4,565	1,254	1,189	434	454	328	449
1990	9,138	4,779	1,321	1,213	471	500	348	505
1991	10,169	5,521	1,436	1,152	534	621	386	520
1992	10,271	5,064	1,540	1,403	586	640	438	600
1993	11,208	5,848	1,562	1,616	614	583	433	553
1994	11,797	6,191	1,680	1,703	641	565	439	577
1995	11,928	6,271	1,734	1,589	708	594	435	597
1996	11,978	6,620	1,740	1,447	665	601	376	529
1997	12,559	7,057	1,819	1,345	719	583	441	595
1998	13,366	7,565	1,875	1,422	787	623	415	679
1999	14,959	8,762	2,076	1,474	787	630	492	739
2000 (estimated)	16,612	10,085	2,200	1,523	787	642	581	797
2001 (estimated)	17,724	10,715	2,634	1,534	787	706	502	847
Millions of constant 1996 dollars^c								
1970	5,181	1,818	800	758	460	351	228	762
1971	5,498	2,015	892	705	448	314	241	882
1972	6,079	2,414	1,156	693	380	271	278	884
1973	5,861	2,327	1,143	624	339	254	287	884
1974	6,318	2,931	1,110	562	283	268	271	890
1975	6,235	2,785	1,125	525	279	341	279	900
1976	6,164	2,862	1,056	580	287	350	290	742
1977	6,527	2,945	1,148	613	265	422	315	818
1978	7,096	3,139	1,129	805	267	505	391	858
1979	7,563	3,656	1,200	852	270	506	389	690
1980	7,614	3,593	1,223	884	282	509	386	736
1981	7,271	3,421	1,143	933	278	488	396	612
1982	7,007	3,256	1,088	1,010	283	421	388	561
1983	7,238	3,486	1,141	1,055	275	433	401	446
1984	7,797	3,816	1,237	1,167	287	451	367	471
1985	8,627	4,297	1,363	1,279	322	486	399	479
1986	8,715	4,309	1,318	1,459	337	458	364	472
1987	9,488	5,047	1,417	1,315	380	499	362	467
1988	9,802	5,258	1,431	1,341	423	508	382	458
1989	10,457	5,505	1,512	1,434	523	547	396	541
1990	10,619	5,554	1,535	1,410	547	581	404	587
1991	11,375	6,176	1,606	1,289	597	695	432	582
1992	11,196	5,520	1,679	1,529	639	698	477	654

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-10.

Federal obligations for academic R&D, by agency: 1970–2001

Year	All agencies	National Institutes of Health ^a	National Science Foundation	Department of Defense	National				All other agencies
					Aeronautics and Space Administration	Department of Energy ^b	Department of Agriculture		
1993	11,932	6,226	1,663	1,720	654	621	461	589	
1994	12,294	6,452	1,751	1,775	668	589	457	601	
1995	12,166	6,396	1,769	1,621	722	606	444	609	
1996	11,978	6,620	1,740	1,447	665	601	376	529	
1997	12,319	6,922	1,784	1,319	705	572	433	584	
1998	12,926	7,316	1,813	1,375	761	603	401	657	
1999	14,267	8,357	1,980	1,406	751	601	469	705	
2000 (estimated)	15,544	9,437	2,059	1,425	736	601	544	746	
2001 ((estimated))	16,244	9,820	2,414	1,406	721	647	460	776	
Percent									
1970	100.0	35.1	15.4	14.6	8.9	6.8	4.4	14.7	
1971	100.0	36.7	16.2	12.8	8.1	5.7	4.4	16.0	
1972	100.0	39.7	19.0	11.4	6.3	4.5	4.6	14.5	
1973	100.0	39.7	19.5	10.6	5.8	4.3	4.9	15.1	
1974	100.0	46.4	17.6	8.9	4.5	4.2	4.3	14.1	
1975	100.0	44.7	18.0	8.4	4.5	5.5	4.5	14.4	
1976	100.0	46.4	17.1	9.4	4.7	5.7	4.7	12.0	
1977	100.0	45.1	17.6	9.4	4.1	6.5	4.8	12.5	
1978	100.0	44.2	15.9	11.3	3.8	7.1	5.5	12.1	
1979	100.0	48.3	15.9	11.3	3.6	6.7	5.1	9.1	
1980	100.0	47.2	16.1	11.6	3.7	6.7	5.1	9.7	
1981	100.0	47.0	15.7	12.8	3.8	6.7	5.4	8.4	
1982	100.0	46.5	15.5	14.4	4.0	6.0	5.5	8.0	
1983	100.0	48.2	15.8	14.6	3.8	6.0	5.5	6.2	
1984	100.0	48.9	15.9	15.0	3.7	5.8	4.7	6.0	
1985	100.0	49.8	15.8	14.8	3.7	5.6	4.6	5.6	
1986	100.0	49.4	15.1	16.7	3.9	5.3	4.2	5.4	
1987	100.0	53.2	14.9	13.9	4.0	5.3	3.8	4.9	
1988	100.0	53.6	14.6	13.7	4.3	5.2	3.9	4.7	
1989	100.0	52.6	14.5	13.7	5.0	5.2	3.8	5.2	
1990	100.0	52.3	14.5	13.3	5.2	5.5	3.8	5.5	
1991	100.0	54.3	14.1	11.3	5.3	6.1	3.8	5.1	
1992	100.0	49.3	15.0	13.7	5.7	6.2	4.3	5.8	
1993	100.0	52.2	13.9	14.4	5.5	5.2	3.9	4.9	
1994	100.0	52.5	14.2	14.4	5.4	4.8	3.7	4.9	
1995	100.0	52.6	14.5	13.3	5.9	5.0	3.6	5.0	
1996	100.0	55.3	14.5	12.1	5.6	5.0	3.1	4.4	
1997	100.0	56.2	14.5	10.7	5.7	4.6	3.5	4.7	
1998	100.0	56.6	14.0	10.6	5.9	4.7	3.1	5.1	
1999	100.0	58.6	13.9	9.9	5.3	4.2	3.3	4.9	
2000 (estimated)	100.0	60.7	13.2	9.2	4.7	3.9	3.5	4.8	
2001 (estimated)	100.0	60.5	14.9	8.7	4.4	4.0	2.8	4.8	

^aData for the National Institutes of Health include the Alcohol, Drug Abuse, and Mental Health Administration.

^bData for 1970–73 are for the Atomic Energy Commission; data for 1974–76 are for the Energy Research and Development Administration; data for 1977 and thereafter are for the Department of Energy.

^cSee appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 1996 dollars.

NOTE: Percentages may not total 100 because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001*, Detailed Statistical Tables, Vol. 49, NSF 01-328 (Arlington, VA, 2001); and NSF, annual series.

Appendix table 5-11.
Federal obligations for academic research, by agency: 1970–2001

Year	All agencies	National Institutes of Health ^a	National Science Foundation	Department of Defense	National Aeronautics and Space Administration	Department of Energy ^b	Department of Agriculture	All other agencies
		Millions of current dollars						
1970	1,276	480	223	173	65	97	65	174
1971	1,430	551	254	184	70	90	72	210
1972	1,643	677	346	177	48	81	87	226
1973	1,691	749	370	161	80	79	94	158
1974	1,958	1,004	369	167	85	86	94	153
1975	2,079	1,036	420	165	91	112	108	148
1976	2,250	1,138	429	192	98	116	119	158
1977	2,584	1,269	505	221	105	134	139	211
1978	2,928	1,437	534	243	116	175	181	241
1979	3,333	1,657	612	271	125	204	198	266
1980	3,699	1,835	680	313	146	224	214	287
1981	3,920	1,929	698	363	157	248	240	284
1982	4,045	1,995	713	413	156	236	253	280
1983	4,468	2,246	783	472	170	273	273	250
1984	5,030	2,573	880	539	177	311	260	290
1985	5,726	2,990	1,002	587	213	336	292	305
1986	5,883	3,054	992	707	225	334	273	298
1987	6,640	3,651	1,096	681	263	372	279	298
1988	7,023	3,856	1,143	729	310	384	304	297
1989	7,793	4,167	1,254	840	387	437	326	382
1990	8,137	4,349	1,321	795	422	479	346	426
1991	8,868	4,729	1,436	794	474	596	384	456
1992	9,061	4,517	1,540	912	512	605	436	538
1993	9,892	5,253	1,562	1,090	539	547	429	472
1994	10,292	5,517	1,680	1,079	555	529	436	496
1995	10,354	5,481	1,734	1,047	588	558	431	516
1996	10,707	5,924	1,740	1,071	560	566	373	471
1997	11,173	6,309	1,819	945	596	552	437	515
1998	11,741	6,716	1,875	965	648	564	408	566
1999	13,204	7,733	2,076	989	745	562	482	617
2000 (estimated)	14,699	8,866	2,200	1,064	745	572	573	680
2001 (estimated)	15,696	9,372	2,634	1,117	745	623	495	711
Millions of constant 1996 dollars^c								
1970	4,480	1,686	784	606	230	339	227	609
1971	4,780	1,840	848	615	235	300	240	703
1972	5,245	2,162	1,105	564	154	259	279	722
1973	5,170	2,289	1,132	491	246	241	288	483
1974	5,589	2,866	1,053	477	242	244	269	437
1975	5,376	2,678	1,086	427	235	290	278	383
1976	5,434	2,749	1,036	463	236	281	288	382
1977	5,804	2,850	1,134	496	236	301	312	475
1978	6,157	3,022	1,123	510	245	367	381	508
1979	6,483	3,223	1,191	527	244	396	385	517
1980	6,607	3,277	1,215	558	261	400	383	512
1981	6,383	3,141	1,136	591	256	404	391	463
1982	6,156	3,035	1,085	628	237	359	385	427
1983	6,512	3,274	1,141	688	247	398	398	365
1984	7,070	3,617	1,237	757	249	438	365	408
1985	7,792	4,069	1,363	799	290	457	398	416
1986	7,817	4,058	1,318	940	299	444	363	397
1987	8,587	4,721	1,418	881	340	481	361	386
1988	8,794	4,829	1,432	913	388	481	381	371
1989	9,397	5,024	1,512	1,013	467	527	393	461
1990	9,456	5,054	1,535	924	490	557	402	495
1991	9,919	5,290	1,606	888	531	666	429	510
1992	9,876	4,924	1,679	994	558	660	475	586

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-11.
Federal obligations for academic research, by agency: 1970–2001

Year	All agencies	National Institutes of Health ^a	National Science Foundation	Department of Defense	National Aeronautics and Space Administration	Department of Energy ^b	Department of Agriculture	All other agencies
		Percent						
1993	10,532	5,592	1,663	1,161	574	583	457	503
1994	10,725	5,750	1,751	1,124	579	551	454	517
1995	10,561	5,590	1,768	1,068	599	569	440	526
1996	10,707	5,924	1,740	1,071	560	566	373	471
1997	10,960	6,188	1,784	927	585	542	428	505
1998	11,355	6,495	1,813	933	626	545	395	548
1999	12,593	7,376	1,980	943	710	536	459	589
2000 (estimated)	13,754	8,296	2,058	996	697	535	536	636
2001 (estimated)	14,386	8,589	2,414	1,023	683	571	454	652

Year	100.0	37.6	17.5	13.5	5.1	7.6	5.1	13.6
1970	100.0	38.5	17.7	12.9	4.9	6.3	5.0	14.7
1971	100.0	41.2	21.1	10.8	2.9	4.9	5.3	13.8
1972	100.0	44.3	21.9	9.5	4.8	4.7	5.6	9.3
1973	100.0	51.3	18.8	8.5	4.3	4.4	4.8	7.8
1975	100.0	49.8	20.2	7.9	4.4	5.4	5.2	7.1
1976	100.0	50.6	19.1	8.5	4.3	5.2	5.3	7.0
1977	100.0	49.1	19.5	8.6	4.1	5.2	5.4	8.2
1978	100.0	49.1	18.2	8.3	4.0	6.0	6.2	8.2
1979	100.0	49.7	18.4	8.1	3.8	6.1	5.9	8.0
1980	100.0	49.6	18.4	8.5	3.9	6.1	5.8	7.8
1981	100.0	49.2	17.8	9.3	4.0	6.3	6.1	7.3
1982	100.0	49.3	17.6	10.2	3.9	5.8	6.3	6.9
1983	100.0	50.3	17.5	10.6	3.8	6.1	6.1	5.6
1984	100.0	51.2	17.5	10.7	3.5	6.2	5.2	5.8
1985	100.0	52.2	17.5	10.3	3.7	5.9	5.1	5.3
1986	100.0	51.9	16.9	12.0	3.8	5.7	4.6	5.1
1987	100.0	55.0	16.5	10.3	4.0	5.6	4.2	4.5
1988	100.0	54.9	16.3	10.4	4.4	5.5	4.3	4.2
1989	100.0	53.5	16.1	10.8	5.0	5.6	4.2	4.9
1990	100.0	53.4	16.2	9.8	5.2	5.9	4.2	5.2
1991	100.0	53.3	16.2	9.0	5.4	6.7	4.3	5.1
1992	100.0	49.9	17.0	10.1	5.6	6.7	4.8	5.9
1993	100.0	53.1	15.8	11.0	5.4	5.5	4.3	4.8
1994	100.0	53.6	16.3	10.5	5.4	5.1	4.2	4.8
1995	100.0	52.9	16.7	10.1	5.7	5.4	4.2	5.0
1996	100.0	55.3	16.3	10.0	5.2	5.3	3.5	4.4
1997	100.0	56.5	16.3	8.5	5.3	4.9	3.9	4.6
1998	100.0	57.2	16.0	8.2	5.5	4.8	3.5	4.6
1999	100.0	58.6	15.7	7.5	5.6	4.3	3.6	4.7
2000 (estimated)	100.0	60.3	15.0	7.2	5.1	3.9	3.9	4.6
2001 (estimated)	100.0	59.7	16.8	7.1	4.7	4.0	3.2	4.5

^aData for the National Institutes of Health include the Alcohol, Drug Abuse, and Mental Health Administration.

^bData for 1970–73 are for the Atomic Energy Commission; data for 1974–76 are for the Energy Research and Development Administration; data for 1977 and thereafter are for the Department of Energy.

^cSee appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 1996 dollars.

NOTE: Percentages may not total 100 because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001*, Detailed Statistical Tables, Vol. 49, NSF 01-328 (Arlington, VA, 2001); and NSF, annual series.

Appendix table 5-12.

Distribution of Federal agency academic research obligations, by field: FY 1999
(Percentages)

Field	National Science Foundation	National Aeronautics and Space Administration	Department of Defense	Department of Energy	Department of Health and Human Services	Department of Agriculture
Total S&E	100.0	100.0	100.0	100.0	100.0	100.0
Total sciences	81.6	83.3	59.8	87.9	99.3	96.6
Physical sciences	21.1	41.9	10.5	58.9	1.5	4.7
Astronomy	2.0	20.7	0.2	0.0	0.0	0.0
Chemistry	6.9	2.1	3.7	9.1	1.4	4.6
Physics	8.1	15.7	6.0	49.7	0.1	0.0
Other	4.1	3.4	0.6	0.1	0.0	0.0
Mathematics	4.1	0.2	2.1	2.5	0.1	0.1
Computer sciences	13.4	3.8	20.6	0.6	0.2	0.0
Environmental sciences	16.1	24.6	8.9	12.1	0.3	0.4
Atmospheric sciences	3.6	12.2	1.4	3.8	0.0	0.4
Earth sciences	4.3	3.3	0.2	5.0	0.0	0.0
Ocean sciences	7.7	1.1	7.0	0.5	0.0	0.0
Other	0.5	7.9	0.2	2.8	0.3	0.0
Life sciences	17.6	7.6	15.7	13.2	88.9	81.6
Agricultural sciences	0.0	0.1	0.0	0.0	0.0	42.0
Biology (excluding environmental)	12.9	3.2	6.3	9.1	47.8	19.7
Environmental biology	4.7	0.2	0.8	0.0	0.0	18.3
Medical sciences	0.0	0.7	7.0	4.1	38.3	1.7
Other	0.0	3.5	1.5	0.0	2.8	0.0
Psychology	0.2	1.0	0.3	0.0	3.9	0.0
Biological aspects	0.0	0.0	0.2	0.0	0.2	0.0
Social aspects	0.2	0.3	0.0	0.0	0.1	0.0
Other	0.0	0.7	0.1	0.0	3.7	0.0
Social sciences	4.6	0.0	0.0	0.0	1.1	9.9
Anthropology	0.5	0.0	0.0	0.0	0.0	0.0
Economics	0.6	0.0	0.0	0.0	0.0	7.9
Political science	0.3	0.0	0.0	0.0	0.0	0.0
Sociology	0.2	0.0	0.0	0.0	0.0	2.0
Other	3.0	0.0	0.0	0.0	1.1	0.0
Other sciences	4.5	4.0	1.7	0.5	3.3	0.0
Total engineering	18.4	16.7	40.2	12.1	0.7	3.4
Aeronautical	0.0	5.3	3.3	0.0	0.0	0.0
Astronautical	0.0	5.3	0.1	0.0	0.0	0.0
Chemical	2.0	0.2	1.3	3.3	0.0	0.1
Civil	1.8	0.0	0.2	0.8	0.0	0.0
Electrical	2.2	1.2	13.6	0.5	0.0	0.0
Mechanical	0.3	1.4	5.2	1.6	0.0	0.0
Materials	5.4	2.1	9.9	2.9	0.0	0.0
Other	6.6	1.2	6.6	2.9	0.7	3.3

NOTES: Academic research includes both basic and applied research. The six agencies shown are the only ones that report their research obligations to academia by S&E field; they represent approximately 97 percent of academic research obligations.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001*, Detailed Statistical Tables, Vol. 49, NSF 01-328 (Arlington, VA, 2001); and NSF, annual series.

See figure 5-12 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 5-13.

Federal academic research obligations provided by major agencies, by field: FY 1999
 (Percentages)

Field	Six-agency total	National Science Foundation	National Aeronautics and Space Administration	Department of Defense	Department of Energy	Department of Health and Human Services	Department of Agriculture
Total S&E	100.0	16.3	5.8	7.7	4.4	62.0	3.8
Total sciences	100.0	14.4	5.3	5.0	4.2	67.0	4.0
Physical sciences	100.0	33.1	23.6	7.8	25.0	8.8	1.7
Astronomy	100.0	20.7	78.2	1.1	0.0	0.0	0.0
Chemistry	100.0	37.4	4.1	9.6	13.5	29.6	5.9
Physics	100.0	26.9	18.6	9.4	44.4	0.6	0.0
Other	100.0	73.0	21.6	5.0	0.4	0.0	0.0
Mathematics	100.0	63.8	1.0	15.3	10.7	8.9	0.2
Computer sciences	100.0	52.9	5.4	38.7	0.6	2.5	0.0
Environmental sciences	100.0	48.1	26.3	12.6	9.8	3.0	0.3
Atmospheric sciences	100.0	36.8	45.0	6.8	10.4	0.0	0.9
Earth sciences	100.0	61.8	16.9	1.7	19.5	0.0	0.1
Ocean sciences	100.0	66.4	3.5	28.8	1.2	0.0	0.0
Other	100.0	10.4	54.0	1.9	14.5	19.2	0.0
Life sciences	100.0	4.5	0.7	1.9	0.9	87.1	4.9
Agricultural sciences	100.0	0.0	0.3	0.0	0.0	0.0	99.7
Biology (excluding environmental)	100.0	6.2	0.6	1.5	1.2	88.3	2.2
Environmental biology	100.0	50.0	0.7	4.1	0.0	0.0	45.1
Medical sciences	100.0	0.0	0.2	2.2	0.7	96.6	0.3
Other	100.0	0.0	9.8	5.7	0.1	84.5	0.0
Psychology	100.0	1.3	2.3	1.0	0.0	95.4	0.0
Biological aspects	100.0	0.0	0.5	16.1	0.0	83.4	0.0
Social aspects	100.0	35.7	21.3	0.0	0.0	43.0	0.0
Other	100.0	0.0	1.6	0.4	0.0	98.0	0.0
Social sciences	100.0	41.7	0.1	0.0	0.0	37.6	20.5
Anthropology	100.0	100.0	0.0	0.0	0.0	0.0	0.0
Economics	100.0	25.3	0.0	0.0	0.0	1.8	72.8
Political science	100.0	100.0	0.0	0.0	0.0	0.0	0.0
Sociology	100.0	26.6	1.3	0.0	0.0	6.9	65.1
Other	100.0	42.5	0.1	0.0	0.0	57.4	0.0
Other sciences	100.0	23.2	7.5	4.1	0.7	64.4	0.0
Total engineering	100.0	36.5	11.9	38.0	6.5	5.5	1.6
Aeronautical	100.0	0.0	54.8	45.2	0.0	0.0	0.0
Astronautical	100.0	0.0	96.5	3.5	0.0	0.0	0.0
Chemical	100.0	55.0	2.3	17.3	25.0	0.0	0.5
Civil	100.0	85.2	0.3	3.7	10.6	0.0	0.2
Electrical	100.0	23.9	4.6	70.0	1.6	0.0	0.0
Mechanical	100.0	9.0	13.0	66.0	11.9	0.0	0.1
Materials	100.0	46.3	6.6	40.5	6.6	0.0	0.0
Other	100.0	45.7	3.0	21.5	5.4	19.2	5.2

NOTES: Academic research includes both basic and applied research. The six agencies shown are the only ones that report their research obligations to academia by S&E field; they represent approximately 97 percent of academic research obligations.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal Funds for Research and Development: Fiscal Years 1999, 2000, and 2001*, Detailed Statistical Tables, Vol. 49, NSF 01-328 (Arlington, VA, 2001); and NSF, annual series.

See figure 5-13 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 5-14.

Number of academic institutions receiving Federal R&D support, by selected Carnegie classification: 1971–99

Year	All academic institutions	Carnegie research and doctorate-granting institutions	Other Carnegie institutions
1971	563	222	341
1972	618	223	395
1973	534	219	315
1974	547	217	330
1975	556	221	335
1976	572	222	350
1977	618	220	398
1978	675	221	454
1979	665	223	442
1980	684	223	461
1981	621	225	396
1982	589	223	366
1983	602	226	376
1984	603	225	378
1985	648	226	422
1986	650	225	425
1987	738	228	510
1988	683	228	455
1989	712	229	483
1990	748	228	520
1991	775	227	548
1992	837	228	609
1993	889	227	662
1994	903	227	676
1995	891	228	663
1996	836	228	608
1997	832	228	604
1998	794	230	564
1999	787	228	559

NOTES: See chapter 2, "Classification of Academic Institutions," for information on the institutional categories used by the Carnegie Foundation for the Advancement of Teaching. "Other Carnegie institutions" are all Carnegie-classified institutions except research and doctorate-granting institutions.

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions: Fiscal Year 1999*, Detailed Statistical Tables, NSF 01-323 (Arlington, VA, 2001); and NSF, annual series.

See figure 5-14 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 5-15.

Academic research space, new construction, and repaired/renovated space, by field: 1986–2001
(Millions of square feet)

Field	Total research space							
	1988	1990	1992	1994	1996	1998	1999	
Total, all fields	112	116	122	127	136	143	151	
Physical sciences	16	16	16	17	18	18	19	
Mathematics	1	1	1	1	1	1	1	
Computer sciences	1	1	2	2	2	2	2	
Earth, atmospheric, and ocean sciences	6	6	7	7	7	8	8	
Agricultural sciences	18	21	20	20	22	25	25	
Biological sciences								
Universities and colleges	16	18	17	17	19	19	19	
Medical schools	8	9	11	11	11	12	13	
Medical sciences								
Universities and colleges	5	5	6	6	7	7	8	
Medical schools	14	15	16	17	18	18	19	
Psychology	3	3	3	3	3	3	4	
Social sciences	3	3	3	3	4	5	5	
Other sciences (n.e.c.)	4	2	2	2	2	3	3	
Engineering	16	17	18	21	22	23	26	
New construction								
	1986–87	1988–89	1990–91	1992–93	1994–95	1996–97	1998–99	2000–01 ^a
Total, all fields	9.9	10.6	11.4	11.0	9.5	11.1	8.8	16.1
Physical sciences	0.8	2.0	1.6	1.3	1.6	1.2	1.1	1.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	0.2	0.3	0.3	0.2	0.1	0.1	0.3	0.5
Earth, atmospheric, and ocean sciences	0.4	0.3	0.5	0.5	0.3	0.5	0.3	0.6
Agricultural sciences	1.5	1.1	1.0	1.2	0.8	1.5	0.8	1.0
Biological sciences								
Universities and colleges	1.3	1.5	1.4	1.2	1.0	1.2	1.0	2.2
Medical schools	0.4	0.7	1.4	1.0	0.6	0.7	1.0	2.8
Medical sciences								
Universities and colleges	0.6	0.3	0.7	0.7	0.4	0.7	0.8	1.6
Medical schools	1.3	1.9	2.3	3.2	1.7	2.7	1.3	2.6
Psychology	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.4
Social sciences	0.2	0.3	b	0.2	0.4	0.2	0.1	0.2
Other sciences (n.e.c.)	0.6	0.4	0.4	0.4	0.3	0.5	0.5	0.6
Engineering	2.4	1.5	1.7	1.1	2.2	1.5	1.5	2.5
Repaired/renovated space								
	1986–87	1988–89	1990–91	1992–93	1994–95	1996–97	1998–99	2000–01 ^a
Total, all fields	13.4	11.4	8.6	9.1	13.1	15.1	16.4	12.5
Physical sciences	1.7	1.9	1.7	1.7	2.5	2.4	2.1	1.8
Mathematics	0.0	0.1	0.0	0.0	0.1	0.1	0.4	0.3
Computer sciences	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1
Earth, atmospheric, and ocean sciences	0.4	0.9	0.5	0.4	0.5	0.4	0.9	0.5
Agricultural sciences	0.6	0.5	0.4	0.3	1.2	0.8	0.6	0.4
Biological sciences								
Universities and colleges	2.6	2.2	1.1	1.3	1.6	2.5	2.0	1.8
Medical schools	1.1	1.3	1.3	0.9	0.8	1.5	2.3	2.0
Medical sciences								
Universities and colleges	0.7	0.7	0.6	0.3	0.8	0.7	1.1	0.8
Medical schools	2.5	1.6	1.4	1.7	3.1	2.2	1.6	2.3
Psychology	0.3	0.1	0.3	0.1	0.2	0.5	0.6	0.4
Social sciences	0.2	0.1	b	0.2	0.3	0.7	0.8	0.6
Other sciences (n.e.c.)	0.5	0.2	0.0	0.2	0.2	0.4	1.2	0.2
Engineering	2.7	1.6	1.2	1.9	1.8	2.7	2.6	1.3

n.e.c. = not elsewhere classified

^aNew construction and repair/renovation planned to start in FY 2000 or FY 2001, the two-year period after the survey year.^bData included with psychology.

NOTES: For new construction and repair/renovation, data for two years are combined; e.g., 1988–89 refers to two fiscal years. Total research space is current actual space reported at the time of the survey. Square footage refers to net assignable square feet (the sum of all areas on all floors of a building assigned to or available to be assigned to an occupant for specific use, such as instruction or research). Details may not add to totals because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Scientific and Engineering Research Facilities at Universities and Colleges, various years.

See figure 5-15 in Volume 1.

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Appendix table 5-16.

Cost of new construction and repair/renovation of academic research facilities, by field: 1986–2001
 (Millions of current dollars)

Field	1986–87	1988–89	1990–91	1992–93	1994–95	1996–97	1998–99		2000–01
	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Planned	Planned
New construction									
Total, all fields	2,051	2,464	2,976	2,812	2,768	3,110	2,882	3,949	7,447
Physical sciences.....	182	401	430	337	426	381	419	525	549
Mathematics	2	8	12	10	2	9	11	19	13
Computer sciences	61	65	40	47	46	21	69	27	169
Earth, atmospheric, and ocean sciences.....	57	82	170	123	33	172	116	235	201
Agricultural sciences	150	152	175	210	150	273	156	169	233
Biological sciences									
Universities and colleges	324	396	451	292	388	404	389	812	1,027
Medical schools	139	181	381	341	226	178	294	597	1,503
Medical sciences									
Universities and colleges	203	61	151	160	122	259	337	206	1,215
Medical schools	302	587	655	839	525	784	511	613	1,256
Psychology	23	25	36	16	42	77	50	91	169
Social sciences	38	48	^a	44	112	75	46	81	71
Other sciences (n.e.c.)	139	70	79	106	122	145	130	46	270
Engineering	430	388	395	286	575	332	354	528	771
Repair/renovation									
Total, all fields	838	1,010	826	837	1,058	1,325	1,693	1,580	2,000
Physical sciences	105	165	151	134	192	244	216	241	328
Mathematics	4	11	6	2	6	5	17	51	30
Computer sciences	17	9	21	4	8	12	19	95	22
Earth, atmospheric, and ocean sciences.....	21	18	16	31	35	52	82	54	42
Agricultural sciences	20	23	35	14	72	50	23	26	27
Biological sciences									
Universities and colleges	146	126	135	108	127	200	256	280	260
Medical schools	78	76	123	116	101	164	233	93	337
Medical sciences									
Universities and colleges	52	24	53	28	59	76	109	77	107
Medical schools	174	161	166	234	226	196	241	282	600
Psychology	14	11	31	10	28	65	30	33	49
Social sciences	36	8	^a	10	40	40	101	124	64
Other sciences (n.e.c.)	30	17	6	7	12	11	64	24	26
Engineering	141	361	82	139	150	208	301	198	107

n.e.c. = not elsewhere classified

^aData included with psychology.

NOTES: Project cost estimates are prorated to reflect research component only. Data for two years are combined, e.g., 1988–89 refers to two fiscal years. Costs refer to the entire completion costs of projects begun in the two fiscal years. Actual cost data are provided in the survey year and planned costs are provided for the two-year period after the survey year.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Scientific and Engineering Research Facilities at Universities and Colleges, various years.

Appendix table 5-17.

Funds for new construction and repair/renovation of S&E research space, by type of institution and funding source:**1986–99**

(Millions of current dollars)

Institution type and funding source	1986–87	1988–89	1990–91	1992–93	1994–95	1996–97	1998–99 ^a
Total new construction and repair/renovation							
All institutions	2,888.5	3,474.0	3,801.3	3,646.2	3,825.7	4,434.8	4,231.4
Federal Government	172.7	413.1	525.3	515.5	317.2	391.7	264.2
State and local government	1,012.2	1,124.5	1,199.6	1,220.4	1,446.3	1,304.7	1,258.5
Private donations	588.5	511.3	453.2	374.0	470.7	737.2	593.8
Institutional funds ^b	617.8	914.6	749.5	706.3	874.7	1,171.7	1,203.4
Tax-exempt bonds	450.7	390.1	793.9	701.3	476.5	637.6	732.2
Other debt	6.9	111.8	43.4	66.0	224.3	142.3	134.4
Other	39.3	6.0	36.3	66.2	15.8	49.6	45.0
Public institutions	1,790.7	2,425.5	2,469.3	2,536.8	2,368.1	2,658.3	2,507.8
Federal Government	53.5	305.7	412.7	360.1	154.3	273.4	222.2
State and local government	981.1	1,067.7	1,042.9	1,166.9	1,419.0	1,268.5	1,096.6
Private donations	274.1	214.9	182.9	177.4	139.9	305.6	239.8
Institutional funds ^b	264.3	659.8	404.8	352.7	303.2	428.9	611.3
Tax-exempt bonds	215.0	161.1	410.7	446.4	324.4	284.8	272.7
Other debt	2.7	13.0	7.8	17.8	14.4	54.7	32.8
Other	0.4	0.6	7.5	15.2	13.0	42.6	32.5
Private institutions	1,097.8	1,048.5	1,332.0	1,110.1	1,457.5	1,776.5	1,723.6
Federal Government	119.2	107.4	112.6	155.3	162.8	118.3	42.1
State and local government	31.1	56.8	156.7	53.8	27.5	36.2	162.0
Private donations	314.4	296.4	270.3	196.0	330.9	431.8	354.0
Institutional funds ^b	353.5	254.8	344.7	352.4	571.4	742.8	592.2
Tax-exempt bonds	235.7	229.0	383.2	254.1	152.2	352.9	459.4
Other debt	4.2	98.8	35.6	47.9	209.9	87.6	101.5
Other	38.9	5.4	28.8	50.7	2.8	7.0	12.4
New construction							
All institutions	2,050.6	2,464.5	2,975.6	2,810.8	2,767.6	3,110.3	2,545.5
Federal Government	145.4	352.0	476.3	459.3	206.5	270.9	198.6
State and local government	779.1	890.7	956.6	968.0	1,180.8	966.6	814.5
Private donations	487.5	459.2	352.6	301.0	360.0	596.6	390.2
Institutional funds ^b	289.8	343.8	394.1	374.3	442.0	593.1	558.2
Tax-exempt bonds	313.1	320.2	727.5	620.3	426.1	553.0	492.2
Other debt	3.1	95.9	35.4	39.0	145.7	106.6	60.7
Other	31.9	0.8	33.1	50.0	6.5	23.5	31.2
Public institutions	1,354.8	1,727.0	2,020.0	2,016.4	1,872.3	1,988.7	1,536.1
Federal Government	40.3	274.3	388.1	325.8	115.4	201.0	171.7
State and local government	754.5	838.4	809.4	929.8	1,164.6	940.2	656.5
Private donations	259.1	192.9	139.1	152.5	123.9	267.3	172.4
Institutional funds ^b	109.2	256.3	270.2	198.3	142.4	249.3	250.8
Tax-exempt bonds	189.5	154.5	398.6	390.5	306.1	259.7	222.0
Other debt	2.4	8.1	7.8	16.2	13.5	54.4	32.7
Other	0.2	0.6	6.9	3.3	6.5	16.9	30.0
Private institutions	695.8	737.5	955.6	795.5	895.2	1,121.6	1,009.4
Federal Government	105.1	77.7	88.2	133.5	91.0	69.9	27.0
State and local government	24.6	52.3	147.2	38.8	16.3	26.4	158.0
Private donations	228.4	266.3	213.5	148.5	236.1	329.4	217.8
Institutional funds ^b	180.6	87.5	123.9	176.1	299.5	343.8	307.4
Tax-exempt bonds	123.6	165.7	328.9	229.6	120.0	293.4	270.2
Other debt	0.7	87.8	27.6	22.7	132.2	52.2	27.9
Other	31.7	0.2	26.2	46.4	0.0	6.6	1.1
Repair/renovation							
All institutions	837.9	1,009.5	825.7	835.4	1,058.1	1,324.5	1,685.9
Federal Government	27.3	61.1	49.0	56.2	110.7	120.8	65.6
State and local government	233.1	233.8	243.0	252.4	265.5	338.1	444.0
Private donations	101.0	52.1	100.6	73.0	110.7	140.6	203.6
Institutional funds ^b	328.0	570.8	355.4	332.0	432.7	578.6	645.2
Tax-exempt bonds	137.6	69.9	66.4	81.0	50.4	84.6	240.0
Other debt	3.8	15.9	8.0	27.0	78.6	35.7	73.7
Other	7.4	5.2	3.2	16.2	9.3	26.1	13.8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-17.

**Funds for new construction and repair/renovation of S&E research space, by type of institution and funding source:
1986–99**

(Millions of current dollars)

Institution type and funding source	1986–87	1988–89	1990–91	1992–93	1994–95	1996–97	1998–99 ^a
Public institutions	435.9	698.5	449.3	520.4	495.8	669.6	971.7
Federal Government	13.2	31.4	24.6	34.3	38.9	72.4	50.5
State and local government	226.6	229.3	233.5	237.1	254.4	328.3	440.1
Private donations	15.0	22.0	43.8	24.9	16.0	38.3	67.4
Institutional funds ^b	155.1	403.5	134.6	154.4	160.8	179.6	360.5
Tax-exempt bonds	25.5	6.6	12.1	55.9	18.3	25.1	50.7
Other debt	0.3	4.9	0.0	1.6	0.9	0.3	0.1
Other	0.2	0.0	0.6	11.9	6.5	25.7	2.5
Private institutions	402.0	311.0	376.4	314.6	562.3	654.9	714.2
Federal Government	14.1	29.7	24.4	21.8	71.8	48.4	15.1
State and local government	6.5	4.5	9.5	15.0	11.2	9.8	4.0
Private donations	86.0	30.1	56.8	47.5	94.8	102.4	136.2
Institutional funds ^b	172.9	167.3	220.8	176.3	271.9	399.0	284.8
Tax-exempt bonds	112.1	63.3	54.3	24.5	32.2	59.5	189.2
Other debt	3.5	11.0	8.0	25.2	77.7	35.4	73.6
Other	7.2	5.2	2.6	4.3	2.8	0.4	11.3

^aSeveral institutions provided inconsistent information about the costs of new construction and repair/renovation and the source of these funds for 1998 or 1999. Consequently, data for sources of funding may not be consistent with data for construction and repair/renovation costs.

^bFunds from the institution's operating funds, endowments, indirect costs recovered from Federal grants and/or contracts, indirect costs recovered from other sources, etc.

NOTES: Data for two years are combined, e.g., 1988–89 refers to two fiscal years. Details may not add to 100 because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Scientific and Engineering Research Facilities at Universities and Colleges, various years.

See figure 5-16 in Volume 1.

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Appendix table 5-18.

Percentage of funds for new construction and repair/renovation of S&E research space, by type of institution and funding source: 1986–99

Institution type and funding source	1986–87	1988–89	1990–91	1992–93	1994–95	1996–97	1998–99
Total new construction and repair/renovation							
All institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	6.0	11.9	13.8	14.1	8.3	8.8	6.2
State and local government	35.0	32.4	31.6	33.5	37.8	29.4	29.7
Private donations	20.4	14.7	11.9	10.3	12.3	16.6	14.0
Institutional funds ^a	21.4	26.3	19.7	19.4	22.9	26.4	28.4
Tax-exempt bonds	15.6	11.2	20.9	19.2	12.5	14.4	17.3
Other debt	0.2	3.2	1.1	1.8	5.9	3.2	3.2
Other	1.4	0.2	1.0	1.8	0.4	1.1	1.1
Public institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	3.0	12.6	16.7	14.2	6.5	10.3	8.9
State and local government	54.8	44.0	42.2	46.0	59.9	47.7	43.7
Private donations	15.3	8.9	7.4	7.0	5.9	11.5	9.6
Institutional funds ^a	14.8	27.2	16.4	13.9	12.8	16.1	24.4
Tax-exempt bonds	12.0	6.6	16.6	17.6	13.7	10.7	10.9
Other debt	0.2	0.5	0.3	0.7	0.6	2.1	1.3
Other	0.0	0.0	0.3	0.6	0.5	1.6	1.3
Private institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	10.9	10.2	8.5	14.0	11.2	6.7	2.4
State and local government	2.8	5.4	11.8	4.8	1.9	2.0	9.4
Private donations	28.6	28.3	20.3	17.7	22.7	24.3	20.5
Institutional funds ^a	32.2	24.3	25.9	31.7	39.2	41.8	34.4
Tax-exempt bonds	21.5	21.8	28.8	22.9	10.4	19.9	26.7
Other debt	0.4	9.4	2.7	4.3	14.4	4.9	5.9
Other	3.5	0.5	2.2	4.6	0.2	0.4	0.7
New construction							
All institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	7.1	14.3	16.0	16.3	7.5	8.7	7.8
State and local government	38.0	36.1	32.1	34.4	42.7	31.1	32.0
Private donations	23.8	18.6	11.8	10.7	13.0	19.2	15.3
Institutional funds ^a	14.1	14.0	13.2	13.3	16.0	19.1	21.9
Tax-exempt bonds	15.3	13.0	24.4	22.1	15.4	17.8	19.3
Other debt	0.2	3.9	1.2	1.4	5.3	3.4	2.4
Other	1.6	0.0	1.1	1.8	0.2	0.8	1.2
Public institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	3.0	15.9	19.2	16.2	6.2	10.1	11.2
State and local government	55.7	48.5	40.1	46.1	62.2	47.3	42.7
Private donations	19.1	11.2	6.9	7.6	6.6	13.4	11.2
Institutional funds ^a	8.1	14.8	13.4	9.8	7.6	12.5	16.3
Tax-exempt bonds	14.0	8.9	19.7	19.4	16.3	13.1	14.5
Other debt	0.2	0.5	0.4	0.8	0.7	2.7	2.1
Other	0.0	0.0	0.3	0.2	0.3	0.8	2.0
Private institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	15.1	10.5	9.2	16.8	10.2	6.2	2.7
State and local government	3.5	7.1	15.4	4.9	1.8	2.4	15.7
Private donations	32.8	36.1	22.3	18.7	26.4	29.4	21.6
Institutional funds ^a	26.0	11.9	13.0	22.1	33.5	30.7	30.5
Tax-exempt bonds	17.8	22.5	34.4	28.9	13.4	26.2	26.8
Other debt	0.1	11.9	2.9	2.9	14.8	4.7	2.8
Other	4.6	0.0	2.7	5.8	0.0	0.6	0.1
Repair/renovation							
All institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	3.3	6.1	5.9	6.7	10.5	9.1	3.9
State and local government	27.8	23.2	29.4	30.2	25.1	25.5	26.3
Private donations	12.1	5.2	12.2	8.7	10.5	10.6	12.1
Institutional funds ^a	39.1	56.5	43.0	39.7	40.9	43.7	38.3
Tax-exempt bonds	16.4	6.9	8.0	9.7	4.8	6.4	14.2
Other debt	0.5	1.6	1.0	3.2	7.4	2.7	4.4
Other	0.9	0.5	0.4	1.9	0.9	2.0	0.8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-18.

Percentage of funds for new construction and repair/renovation of S&E research space, by type of institution and funding source: 1986–99

Institution type and funding source	1986–87	1988–89	1990–91	1992–93	1994–95	1996–97	1998–99 ^a
Public institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	3.0	4.5	5.5	6.6	7.8	10.8	5.2
State and local government	52.0	32.8	52.0	45.6	51.3	49.0	45.3
Private donations	3.4	3.1	9.7	4.8	3.2	5.7	6.9
Institutional funds ^a	35.6	57.8	30.0	29.7	32.4	26.8	37.1
Tax-exempt bonds	5.8	0.9	2.7	10.7	3.7	3.7	5.2
Other debt	0.1	0.7	0.0	0.3	0.2	0.0	0.0
Other	0.0	0.0	0.1	2.3	1.3	3.8	0.3
Private institutions	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Government	3.5	9.5	6.5	6.9	12.8	7.4	2.1
State and local government	1.6	1.4	2.5	4.8	2.0	1.5	0.6
Private donations	21.4	9.7	15.1	15.1	16.9	15.6	19.1
Institutional funds ^a	43.0	53.8	58.7	56.0	48.4	60.9	39.9
Tax-exempt bonds	27.9	20.4	14.4	7.8	5.7	9.1	26.5
Other debt	0.9	3.5	2.1	8.0	13.8	5.4	10.3
Other	1.8	1.7	0.7	1.4	0.5	0.1	1.6

^aFunds from the institution's operating funds, endowments, indirect costs recovered from Federal grants and/or contracts, indirect costs recovered from other sources, etc.

NOTES: Data for two years are combined; e.g., 1988–89 refers to two fiscal years. Percentages may not add to 100 because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Scientific and Engineering Research Facilities at Universities and Colleges, various years.

See figure 5-16 in Volume I.

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Appendix table 5-19.

Expected costs of deferred S&E research facility construction and repair/renovation needs, by field: 1999
(Millions of current dollars)

Field	Total, all needs			In a plan ^a		Not in a plan ^a	
	Construction and repair/ renovation	Construction	Repair/ renovation	Construction	Repair/ renovation	Construction	Repair/ renovation
Total S&E^b	13,608	8,778	4,831	7,304	3,330	1,474	1,501
Physical sciences	1,708	740	967	635	689	105	278
Mathematics	158	86	72	78	55	8	17
Computer sciences	495	434	60	361	26	73	34
Environmental sciences	647	402	245	285	140	117	105
Agricultural sciences	947	642	305	517	206	125	99
Biological sciences							
Universities and colleges	2,263	1,582	681	1,424	469	158	212
Medical schools	969	597	372	470	151	127	221
Medical sciences							
Universities and colleges	1,071	882	189	726	117	156	72
Medical schools	2,151	1,625	525	1,364	380	261	145
Psychology	196	51	146	27	111	24	35
Social sciences	482	245	236	108	181	137	55
Other sciences	744	536	209	511	195	25	14
Engineering	1,777	957	821	798	609	159	212

^aRefers to whether the deferred need is included (or not included) in a formal institutional plan.^bExcludes costs for central campus infrastructure.SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Scientific and Engineering Research Facilities: 1999*, NSF 01-330 (Arlington, VA, 2001).

Appendix table 5-20.

Current fund expenditures for research equipment at academic institutions, by field: 1983-99

Field	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Millions of current dollars																	
Total S&E	450	537	672	783	837	912	986	1,012	1,024	1,033	1,039	1,105	1,235	1,208	1,277	1,291	1,319
Total sciences	371	447	547	637	659	716	784	792	790	808	821	856	966	927	979	992	1,032
Physical sciences	81	104	142	163	166	181	181	191	189	198	207	207	237	234	238	253	248
Astronomy	4	6	7	6	7	7	10	13	14	14	17	20	23	21	26	25	29
Chemistry	32	42	54	59	66	74	76	73	69	70	75	80	81	90	88	91	102
Physics	37	47	71	89	82	85	83	91	88	94	90	88	113	104	105	121	106
Other	8	8	10	9	12	15	12	14	18	20	26	19	22	20	20	16	11
Mathematics	4	5	6	7	10	10	10	10	11	10	15	15	14	13	15	14	12
Computer sciences	20	22	35	43	43	43	43	48	59	45	54	59	76	67	70	63	64
Environmental sciences	31	41	48	51	55	56	67	72	70	78	76	83	81	88	90	101	101
Atmospheric sciences	5	7	8	10	11	10	13	11	10	11	14	11	13	13	14	15	15
Earth sciences	12	16	18	18	20	19	26	27	29	30	27	31	27	30	34	37	35
Ocean sciences	11	14	16	18	17	19	18	20	19	28	24	26	26	28	29	33	37
Other	3	4	5	6	7	7	11	13	12	9	11	15	15	16	12	17	14
Life sciences	209	243	283	331	335	379	431	420	411	429	417	435	464	444	479	492	546
Agricultural sciences	41	42	52	58	49	52	59	54	53	59	53	68	63	62	70	76	73
Biological sciences	74	89	105	120	130	155	175	171	167	174	170	176	192	181	196	189	241
Medical sciences	87	103	114	138	142	156	177	177	169	175	177	172	186	182	197	211	213
Other	7	9	12	15	14	16	20	19	22	21	16	18	22	18	16	16	19
Psychology	7	7	9	9	11	10	11	11	11	11	15	13	12	12	13	13	12
Social sciences	9	14	10	14	12	12	14	15	14	18	19	21	28	25	25	22	18
Economics	2	3	3	4	3	4	4	4	5	5	5	6	8	6	5	4	4
Political science	1	1	1	1	1	1	2	1	2	2	3	3	3	3	3	3	2
Sociology	1	2	2	2	2	2	3	3	3	3	4	4	4	4	4	4	3
Other	5	8	4	7	5	4	6	7	5	7	8	9	13	11	12	11	9
Other sciences	10	10	15	20	27	26	26	25	25	18	18	23	53	44	50	33	32
Total engineering	80	90	124	146	178	195	202	220	234	225	218	248	269	281	298	298	286
Aeronautical/astronautical	3	4	7	8	9	9	11	13	17	12	13	19	16	16	19	20	22
Bioengineering/biomedical	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	6	8
Chemical	6	7	11	14	15	15	19	18	20	20	22	19	22	24	23	28	27
Civil	7	7	10	12	12	17	16	20	18	16	18	18	22	25	27	21	23
Electrical/electronic	23	24	33	36	44	44	49	58	52	57	56	66	68	75	83	82	70
Mechanical	11	15	17	19	25	29	29	32	34	31	35	37	42	42	46	51	51
Materials	NA	NA	NA	NA	NA	NA	NA	27	33	29	23	25	28	32	36	29	28
Other	29	32	46	58	75	81	78	51	59	61	51	65	72	67	60	60	56
Millions of constant 1996 dollars ^a																	
Total S&E	654.0	751.4	911.4	1,039.6	1,078.9	1,137.0	1,184.2	1,170.2	1,142.4	1,124.5	1,105.0	1,150.5	1,258.6	1,208.2	1,252.2	1,250.4	1,258.6
Total sciences	538.5	625.4	742.6	845.8	849.0	893.3	941.7	915.8	881.4	879.4	873.4	892.0	984.6	927.2	960.3	961.4	985.5
Physical sciences	117.2	144.9	192.5	216.3	214.2	226.2	217.1	221.0	211.3	215.7	220.1	215.7	241.8	234.3	233.6	245.3	237.0
Astronomy	6.1	8.3	9.5	7.7	8.4	8.5	12.1	15.3	16.0	15.4	17.8	20.8	22.9	21.0	25.6	24.5	27.5
Chemistry	47.0	59.2	73.2	78.0	84.9	92.4	90.7	84.5	77.1	76.3	79.4	83.1	82.2	90.1	85.9	88.0	97.2
Physics	53.2	65.9	96.7	118.7	105.2	106.3	99.7	105.0	98.2	102.3	95.3	91.8	114.7	103.6	102.9	117.6	101.5
Other	10.9	11.6	13.0	11.8	15.7	18.9	14.6	16.1	20.0	21.7	27.6	20.0	22.0	19.6	19.2	15.2	10.8
Mathematics	5.4	7.5	8.2	9.1	12.6	12.1	12.3	11.8	11.8	11.2	16.1	15.4	14.7	12.9	14.8	14.0	11.3
Computer sciences	29.0	31.1	48.1	56.6	55.2	53.3	51.7	55.5	65.3	49.1	56.9	61.5	77.9	67.3	68.2	61.5	60.9

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-20.

Current fund expenditures for research equipment at academic institutions, by field: 1983–99

Field	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Environmental sciences	45.1	57.7	64.8	68.0	71.4	69.6	81.0	83.4	78.1	84.4	81.2	86.6	82.7	87.6	88.0	98.3	96.2
Atmospheric sciences	7.6	9.6	11.3	13.3	14.5	12.4	15.0	13.2	11.5	11.9	15.4	11.9	13.7	13.2	13.6	14.2	14.0
Earth sciences	16.7	22.1	24.8	23.5	26.3	24.1	30.7	31.7	32.2	32.7	28.4	32.2	27.1	30.4	33.7	36.1	33.1
Ocean sciences	16.5	20.3	21.9	23.6	21.6	23.7	21.5	23.1	21.1	30.0	25.3	27.2	26.8	27.6	28.5	31.8	35.7
Other	4.3	5.7	7.0	7.6	9.1	9.3	13.7	15.4	13.3	9.8	12.1	15.2	15.0	16.4	12.1	16.3	13.4
Life sciences	303.5	340.2	383.5	439.0	432.3	473.1	517.6	485.4	458.8	467.2	443.1	453.5	472.7	443.5	469.4	476.4	521.3
Agricultural sciences	59.4	58.4	70.1	76.8	63.3	65.3	70.6	61.9	59.2	64.4	56.7	71.2	64.4	62.4	68.3	73.5	69.9
Biological sciences	107.1	124.8	142.2	159.1	167.2	193.3	210.5	197.2	186.8	189.3	181.3	183.8	196.1	181.0	192.4	183.1	230.5
Medical sciences	126.7	144.5	155.4	183.8	183.1	194.8	212.3	204.6	188.5	190.7	188.3	179.6	189.3	181.9	193.2	204.5	203.0
Other	10.3	12.5	15.9	19.4	18.7	19.6	24.3	21.9	24.4	22.8	16.8	18.8	22.9	18.3	15.5	15.4	17.8
Psychology	9.5	10.2	11.8	11.5	13.6	11.9	12.8	12.4	12.4	12.2	16.5	13.3	12.5	12.0	13.1	12.8	11.1
Social sciences	13.7	19.4	13.7	18.7	15.2	14.8	17.4	17.4	15.6	19.5	20.2	22.4	28.3	25.2	24.4	21.4	17.1
Economics	3.1	3.8	3.8	4.9	3.7	5.5	4.9	4.7	5.0	5.5	4.9	5.7	7.7	6.5	5.1	3.7	3.7
Political science	1.3	1.5	1.6	1.8	1.7	1.1	2.0	1.7	2.2	2.7	3.0	3.1	3.3	3.5	3.3	3.3	1.9
Sociology	2.0	2.7	2.7	2.9	2.7	2.6	3.6	3.3	2.9	3.7	3.9	4.1	4.2	4.1	4.2	3.8	3.3
Other	7.3	11.3	5.6	9.2	7.1	5.5	6.9	7.7	5.4	7.5	8.4	9.5	13.0	11.1	11.8	10.7	8.2
Other sciences	15.1	14.4	20.0	26.7	34.6	32.3	31.8	29.0	28.1	20.1	19.3	23.7	54.0	44.4	48.7	31.6	30.6
Total engineering	115.5	126.0	168.8	193.7	229.9	243.7	242.5	254.4	261.0	245.1	231.6	258.5	274.0	281.0	291.9	289.0	273.2
Aeronautical/astronautical	5.0	6.1	8.9	10.0	11.0	11.3	13.5	14.6	19.4	12.7	14.1	19.3	16.3	15.5	18.4	18.9	21.1
Bioengineering/biomedical	NA	3.1	6.0	7.3													
Chemical	8.8	10.4	15.4	18.6	18.9	19.1	23.2	20.8	22.3	21.7	22.9	19.5	22.3	23.8	22.6	27.6	26.2
Civil	10.5	9.5	14.1	15.5	14.9	21.5	18.7	23.3	19.9	17.1	19.6	19.0	22.2	24.8	26.3	20.8	22.3
Electrical/electronic	32.8	33.9	44.4	47.8	56.3	54.7	58.3	67.5	58.0	62.3	59.4	68.6	69.1	75.4	81.7	79.8	66.8
Mechanical	16.2	20.7	23.7	25.2	32.5	36.1	35.0	37.5	38.2	34.0	36.7	38.5	42.4	42.1	45.0	49.5	48.5
Materials	NA	NA	NA	NA	NA	NA	31.2	37.0	31.1	24.9	25.9	28.4	32.2	35.5	28.1	27.2	
Other	42.2	45.3	62.2	76.5	96.3	100.9	93.8	59.4	66.3	66.2	54.0	67.8	73.3	67.2	59.2	58.3	53.7
Percent																	
Total S&E	100.0																
Total sciences	82.3	83.2	81.5	81.4	78.7	78.6	79.5	78.3	77.2	78.2	79.0	77.5	78.2	76.7	76.7	76.9	78.3
Physical sciences	17.9	19.3	21.1	20.8	19.9	19.9	18.3	18.9	18.5	19.2	19.9	18.7	19.2	19.4	18.7	19.6	18.8
Astronomy	0.9	1.1	1.0	0.7	0.8	0.7	1.0	1.3	1.4	1.4	1.6	1.8	1.8	1.7	2.0	2.0	2.2
Chemistry	7.2	7.9	8.0	7.5	7.9	8.1	7.7	7.2	6.8	6.8	7.2	7.2	6.5	7.5	6.9	7.0	7.7
Physics	8.1	8.8	10.6	11.4	9.7	9.4	8.4	9.0	8.6	9.1	8.6	8.0	9.1	8.6	8.2	9.4	8.1
Other	1.7	1.5	1.4	1.1	1.5	1.7	1.2	1.4	1.8	1.9	2.5	1.7	1.7	1.6	1.5	1.2	0.9
Mathematics	0.8	1.0	0.9	0.9	1.2	1.1	1.0	1.0	1.0	1.0	1.5	1.3	1.2	1.1	1.2	1.1	0.9
Computer sciences	4.4	4.1	5.3	5.4	5.1	4.7	4.4	4.7	5.7	4.4	5.2	5.3	6.2	5.6	5.4	4.9	4.8
Environmental sciences	6.9	7.7	7.1	6.5	6.6	6.1	6.8	7.1	6.8	7.5	7.3	7.5	6.6	7.2	7.0	7.9	7.6
Atmospheric sciences	1.2	1.3	1.2	1.3	1.3	1.1	1.3	1.1	1.0	1.1	1.4	1.0	1.1	1.1	1.1	1.1	1.1
Earth sciences	2.6	2.9	2.7	2.3	2.4	2.1	2.6	2.7	2.8	2.9	2.6	2.8	2.2	2.5	2.7	2.9	2.6
Ocean sciences	2.5	2.7	2.4	2.3	2.0	2.1	1.8	2.0	1.8	2.7	2.3	2.4	2.1	2.3	2.3	2.5	2.8
Other	0.7	0.8	0.8	0.7	0.8	0.8	1.2	1.3	1.2	0.9	1.1	1.3	1.2	1.4	1.0	1.3	1.1
Life sciences	46.4	45.3	42.1	42.2	40.1	41.6	43.7	41.5	40.2	41.5	40.1	39.4	37.6	36.7	37.5	38.1	41.4
Agricultural sciences	9.1	7.8	7.7	7.4	5.9	5.7	6.0	5.3	5.2	5.7	5.1	6.2	5.1	5.2	5.5	5.9	5.6
Biological sciences	16.4	16.6	15.6	15.3	15.5	17.0	17.8	16.8	16.3	16.8	16.4	16.0	15.6	15.0	15.4	14.6	18.3
Medical sciences	19.4	19.2	17.0	17.7	17.0	17.1	17.9	17.5	16.5	17.0	17.0	15.6	15.0	15.1	15.4	16.4	16.1
Other	1.6	1.7	1.7	1.9	1.7	1.7	2.1	1.9	2.1	2.0	1.5	1.6	1.8	1.5	1.2	1.2	1.4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-20.

Current fund expenditures for research equipment at academic institutions, by field: 1983–99

Field	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Psychology	1.4	1.4	1.3	1.1	1.3	1.1	1.1	1.1	1.1	1.1	1.5	1.2	1.0	1.0	1.0	1.0	0.9
Social sciences	2.1	2.6	1.5	1.8	1.4	1.3	1.5	1.5	1.4	1.7	1.8	1.9	2.2	2.1	2.0	1.7	1.4
Economics	0.5	0.5	0.4	0.5	0.3	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.6	0.5	0.4	0.3	0.3
Political science	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2
Sociology	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3
Other	1.1	1.5	0.6	0.9	0.7	0.5	0.6	0.7	0.5	0.7	0.8	0.8	1.0	0.9	0.9	0.9	0.7
Other sciences	2.3	1.9	2.2	2.6	3.2	2.8	2.7	2.5	2.5	1.8	1.7	2.1	4.3	3.7	3.9	2.5	2.4
Total engineering	17.7	16.8	18.5	18.6	21.3	21.4	20.5	21.7	22.8	21.8	21.0	22.5	21.8	23.3	23.3	23.1	21.7
Aeronautical/astronautical	0.8	0.8	1.0	1.0	1.0	1.0	1.1	1.2	1.7	1.1	1.3	1.7	1.3	1.3	1.5	1.5	1.7
Bioengineering/biomedical	NA	0.3	0.5	0.6													
Chemical	1.3	1.4	1.7	1.8	1.8	1.7	2.0	1.8	1.9	1.9	2.1	1.7	1.8	2.0	1.8	2.2	2.1
Civil	1.6	1.3	1.6	1.5	1.4	1.9	1.6	2.0	1.7	1.5	1.8	1.6	1.8	2.1	2.1	1.7	1.8
Electrical/electronic	5.0	4.5	4.9	4.6	5.2	4.8	4.9	5.8	5.1	5.5	5.4	6.0	5.5	6.2	6.5	6.4	5.3
Mechanical	2.5	2.8	2.6	2.4	3.0	3.2	3.0	3.2	3.3	3.0	3.3	3.3	3.4	3.5	3.6	4.0	3.9
Materials	NA	2.7	3.2	2.8	2.3	2.3	2.3	2.7	2.8	2.3	2.2						
Other	6.5	6.0	6.8	7.4	8.9	8.9	7.9	5.1	5.8	5.9	4.9	5.9	5.8	5.6	4.7	4.7	4.3

NA = not available

^aSee appendix table 4-1 for gross domestic product implicit price deflators used to convert current dollars to constant 1996 dollars.SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Academic Science and Engineering R&D Expenditures: Fiscal Year 1999, Detailed Statistical Tables*, NSF 01-329 (Arlington, VA, 2001); and NSF, unpublished tabulations.

See figure 5-17 in Volume 1.

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Appendix table 5-21.

Current funds provided by Federal Government for research equipment at academic institutions, by field: 1983–99
 (Percentage)

Field	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total S&E	62.3	63.7	64.4	64.0	62.9	63.2	60.4	59.9	59.6	59.8	61.2	60.5	59.1	59.4	58.6	59.8	57.9
Total sciences	61.6	63.7	64.7	65.3	63.9	64.0	61.0	60.1	60.1	60.8	61.9	60.3	58.6	58.8	59.3	59.8	57.7
Physical sciences	78.8	79.9	79.8	80.1	78.5	78.7	73.7	75.3	73.5	76.5	74.2	73.2	74.8	73.2	71.2	74.0	75.0
Astronomy	84.0	74.3	69.3	70.1	75.1	76.5	69.3	63.2	61.7	69.0	65.3	63.4	61.1	70.1	64.7	81.9	86.8
Chemistry	71.7	76.1	76.7	73.1	74.1	77.5	70.3	71.5	68.2	72.1	70.6	69.3	70.7	69.9	66.7	67.2	67.5
Physics	83.4	84.3	84.5	85.8	82.2	79.7	78.3	81.1	79.0	80.8	75.8	79.5	81.9	77.2	76.3	76.4	79.8
Other	84.4	77.9	70.9	75.7	80.1	79.9	66.6	69.5	76.8	76.9	84.6	71.1	67.5	71.3	71.9	81.5	67.4
Mathematics	66.4	76.7	82.1	76.1	77.6	78.0	67.6	65.9	62.8	68.4	75.1	72.3	63.6	74.2	56.3	70.8	64.7
Computer sciences	72.7	75.7	83.0	82.5	79.3	81.3	71.9	65.8	74.6	65.7	69.8	68.8	63.0	71.0	68.1	70.4	68.8
Environmental sciences	61.7	71.0	67.6	68.1	64.9	65.7	66.1	65.8	61.3	67.0	70.6	72.2	68.5	68.0	73.0	67.9	67.1
Atmospheric sciences	71.3	74.5	84.2	81.3	79.7	78.6	65.1	76.8	75.8	78.0	78.0	81.8	71.8	64.1	77.5	81.5	79.6
Earth sciences	54.9	62.8	56.3	54.7	51.8	58.0	63.1	56.9	53.2	58.3	61.3	67.3	60.9	65.3	69.7	66.5	59.0
Ocean sciences	63.7	80.3	74.0	77.6	74.9	72.3	74.7	75.0	71.6	75.9	79.6	78.2	74.8	81.1	75.0	70.8	72.2
Other	63.5	64.2	60.6	57.2	55.2	51.5	60.5	61.2	52.1	55.7	64.3	64.5	67.9	54.1	72.5	53.6	60.5
Life sciences	54.9	56.5	55.6	57.0	56.0	56.7	55.2	53.2	53.6	53.7	54.3	52.2	48.6	49.9	50.0	50.8	49.0
Agricultural sciences	26.8	32.3	29.1	31.1	31.8	31.4	30.9	28.4	30.6	36.5	36.7	35.1	31.8	29.0	30.8	31.8	32.6
Biological sciences	66.0	67.6	67.3	66.9	64.5	64.8	62.9	60.1	60.4	61.0	60.8	60.4	56.0	58.4	55.6	56.4	56.6
Medical sciences	58.5	56.4	57.4	59.5	57.5	57.5	55.4	54.3	54.4	53.4	54.1	51.8	48.2	49.9	51.4	53.1	46.7
Other	58.2	58.7	49.1	54.8	47.6	53.0	56.8	50.6	50.8	44.4	45.8	41.6	34.8	36.9	47.7	43.8	41.6
Psychology	69.7	68.2	71.4	67.6	76.5	68.4	65.2	63.6	64.4	63.9	68.7	60.9	64.5	62.9	64.1	62.6	65.4
Social sciences	32.9	28.2	40.0	30.4	29.3	27.9	33.6	32.5	36.6	43.2	40.1	41.1	38.6	39.8	37.7	40.1	38.9
Economics	40.4	44.9	35.6	31.3	28.9	18.1	25.8	27.2	33.8	48.8	40.2	43.7	37.1	40.0	29.7	34.5	37.8
Political science	36.9	39.2	32.1	26.2	26.8	36.8	23.0	24.4	32.0	45.7	30.5	48.4	35.2	32.1	34.3	47.3	33.2
Sociology	59.6	54.6	53.5	42.1	37.5	40.8	38.0	43.2	52.6	52.1	52.3	43.8	45.9	49.5	44.6	47.9	43.2
Other	21.4	14.8	39.0	27.0	26.9	29.7	39.8	32.9	32.4	33.7	37.9	35.9	37.9	38.4	39.7	37.1	39.0
Other sciences	59.8	54.3	46.1	58.4	51.1	46.5	49.6	46.1	38.3	28.4	41.3	42.9	59.7	39.8	65.6	47.3	26.9
Total engineering	65.3	63.6	62.9	58.4	59.1	60.3	57.9	58.9	57.9	56.3	58.8	61.0	60.9	61.3	56.2	59.7	58.6
Aeronautical/astronautical	76.7	75.3	75.0	74.1	74.7	76.6	76.8	81.1	83.8	75.1	81.3	76.3	76.8	70.3	69.8	69.1	71.1
Bioengineering/biomedical ...	NA	52.5	42.3	46.7													
Chemical	58.1	53.9	58.7	58.8	53.6	54.0	52.2	46.1	49.0	50.6	46.8	58.2	59.0	56.9	55.0	55.6	49.3
Civil	51.5	55.8	58.5	50.8	57.6	61.2	55.5	58.7	46.7	44.9	44.6	44.1	43.8	44.1	43.9	43.3	49.5
Electrical/electronic	71.1	68.4	68.5	66.0	69.0	66.5	60.8	61.8	58.2	59.4	65.9	66.6	61.9	68.4	60.8	66.7	65.3
Mechanical	68.5	70.0	65.1	61.6	63.9	66.4	57.2	56.8	51.8	60.1	64.6	65.9	63.9	63.2	62.5	64.3	63.8
Materials	NA	66.5	59.7	48.8	50.9	48.6	50.5	52.6	51.3	59.5	61.1						
Other	63.2	59.3	58.5	52.0	51.1	53.9	55.6	52.2	59.0	56.2	55.1	58.3	64.3	62.3	49.7	52.6	49.4

NA = not available

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Academic Science and Engineering R&D Expenditures: Fiscal Year 1999, Detailed Statistical Tables*, NSF 01-329 (Arlington, VA, 2001); and NSF, unpublished tabulations.

Appendix table 5-22.

**Expenditures of current funds for research equipment at academic institutions as a percentage of total academic R&D expenditures,
by field: 1983–99**

Field	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total S&E	5.7	6.2	6.9	7.2	6.9	6.8	6.6	6.2	5.8	5.5	5.2	5.3	5.6	5.2	5.2	5.0	4.8
Total sciences	5.5	6.0	6.6	6.9	6.4	6.3	6.2	5.8	5.4	5.1	4.9	4.8	5.2	4.8	4.6	4.6	4.4
Physical sciences	9.0	10.3	12.4	12.7	11.9	11.7	11.0	10.6	9.8	9.6	9.7	9.5	10.5	10.4	10.1	10.2	9.6
Astronomy	5.7	7.3	7.3	5.7	6.0	5.4	7.3	7.8	6.8	5.9	6.5	7.5	7.4	7.6	9.1	8.4	7.4
Chemistry	9.7	11.4	12.8	12.5	12.8	13.1	12.5	11.3	10.3	9.9	10.1	10.5	10.5	11.3	10.7	10.4	11.1
Physics	8.8	9.9	12.9	14.2	12.1	11.5	10.6	10.8	10.0	10.2	9.5	9.2	11.4	10.5	10.0	11.3	9.3
Other	10.1	11.1	12.0	10.5	11.8	12.4	10.4	9.5	10.2	10.4	13.6	9.9	11.3	10.2	9.6	6.9	7.4
Mathematics	3.5	4.3	4.7	4.5	5.5	4.9	4.8	4.6	4.6	4.2	5.6	5.3	5.2	4.5	5.2	4.6	3.8
Computer sciences	10.7	9.9	12.6	13.3	11.5	10.5	9.1	9.3	10.6	8.1	8.8	9.1	11.2	9.8	9.8	8.5	7.4
Environmental sciences	5.0	6.4	6.8	6.6	6.6	6.2	6.7	6.8	6.3	6.2	5.8	6.0	5.7	5.9	5.9	6.3	6.0
Atmospheric sciences	5.3	6.7	7.7	8.3	8.5	7.2	7.6	6.6	5.9	5.6	6.9	5.6	6.5	5.9	5.9	5.4	5.1
Earth sciences	5.3	6.9	7.2	6.5	7.2	6.6	7.9	7.7	7.5	7.3	6.4	6.8	5.8	6.8	7.7	7.3	6.4
Ocean sciences	5.1	6.1	6.3	6.4	5.6	5.7	5.0	5.3	4.9	6.5	5.2	5.7	5.6	5.2	5.4	6.0	6.2
Other	3.8	5.2	6.0	5.6	5.7	5.8	7.3	8.2	7.1	4.3	4.9	5.2	5.0	5.7	4.1	5.7	5.5
Life sciences	4.9	5.2	5.4	5.6	5.1	5.2	5.3	4.8	4.3	4.2	3.8	3.8	3.8	3.5	3.5	3.4	3.5
Agricultural sciences	4.4	4.4	5.2	5.3	4.4	4.5	4.6	4.0	3.6	3.9	3.4	4.1	3.5	3.3	3.5	3.8	3.6
Biological sciences	5.2	5.7	5.9	6.2	6.0	6.4	6.6	6.0	5.5	5.3	4.8	4.8	5.0	4.6	4.7	4.1	4.8
Medical sciences	4.8	5.1	4.9	5.3	4.7	4.6	4.6	4.3	3.7	3.5	3.3	3.1	3.1	2.8	2.9	2.8	2.7
Other	5.4	5.9	6.5	6.1	5.5	5.3	6.3	5.2	5.4	5.0	3.7	4.0	4.8	3.6	3.0	2.9	3.4
Psychology	4.8	5.0	5.5	5.1	5.6	4.5	4.6	4.2	3.9	3.4	4.4	3.6	3.3	3.1	3.4	3.0	2.5
Social sciences	2.7	3.9	2.6	3.0	2.4	2.1	2.3	2.1	1.9	2.2	2.1	2.3	2.7	2.3	2.2	2.0	1.4
Economics	2.2	2.5	2.3	2.7	1.9	2.7	2.2	2.0	2.2	2.3	2.0	2.3	3.0	2.4	2.0	1.5	1.5
Political science	1.6	2.0	2.0	2.0	1.6	1.1	1.6	1.3	1.6	1.7	1.9	1.9	1.9	1.9	1.9	1.9	1.0
Sociology	1.8	2.7	2.6	2.3	2.2	2.0	2.5	2.2	1.7	2.1	2.0	2.0	1.9	1.8	1.7	1.6	1.3
Other	4.4	6.5	3.2	4.3	3.1	2.3	2.6	2.6	1.9	2.4	2.4	2.6	3.4	2.7	2.8	2.5	1.6
Other sciences	6.3	5.7	7.9	8.8	10.5	9.0	8.3	7.5	7.6	5.9	4.9	5.9	12.4	10.6	9.8	7.3	7.1
Total engineering	7.1	7.3	8.8	8.9	9.4	9.3	8.4	8.3	8.1	7.3	6.9	7.4	7.6	7.6	7.7	7.3	6.7
Aeronautical/astronautical	5.0	6.2	8.2	8.0	7.9	7.4	7.5	7.7	9.7	5.9	6.2	8.5	6.6	6.7	7.6	7.8	8.5
Bioengineering/biomedical	NA	4.2	6.1	5.6													
Chemical	6.3	7.3	9.8	10.6	9.9	9.4	10.0	8.3	8.2	7.6	7.9	6.7	7.4	7.5	7.3	8.7	7.9
Civil	5.7	4.9	6.8	6.6	6.1	7.7	6.4	7.1	5.7	4.6	5.0	4.5	5.1	5.4	5.7	4.3	4.4
Electrical/electronic	8.6	8.2	9.7	9.1	9.7	8.6	8.2	8.8	7.7	8.1	8.0	8.8	8.3	8.5	8.8	7.9	6.9
Mechanical	7.5	8.3	8.4	8.3	9.2	9.6	8.5	8.3	8.1	6.9	7.2	7.4	8.0	8.1	8.9	9.0	8.1
Materials	NA	9.9	10.9	9.7	7.8	8.0	8.5	9.2	9.3	7.4	7.4						
Other	6.9	7.2	8.8	9.4	10.4	10.5	9.0	7.7	7.8	7.4	6.2	7.2	8.2	7.1	6.9	6.7	5.9

NA = not available

SOURCES: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Academic Science and Engineering R&D Expenditures: Fiscal Year 1999, Detailed Statistical Tables*, NSF 01-329 (Arlington, VA, 2001); and NSF, unpublished tabulations.

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Appendix table 5-23.

**Doctoral scientists and engineers in research universities and other academic institutions,
by type of appointment and primary work activity: 1973–99**

(Thousands)

Year	All academic institutions				Research universities				All other institutions			
	Total	Teaching	Research	Other	Total	Teaching	Research	Other	Total	Teaching	Research	Other
Total employment												
1973	118.0	73.3	27.8	16.9	65.2	32.3	22.9	10.1	52.7	41.0	4.9	6.8
1975	134.1	83.8	30.8	19.4	73.4	36.5	25.5	11.4	60.7	47.3	5.3	8.1
1977	145.4	82.2	37.0	26.2	78.2	33.4	29.5	15.4	67.2	48.8	7.5	10.9
1979	155.3	83.8	41.3	30.2	83.5	34.0	32.1	17.4	71.8	49.8	9.2	12.8
1981	167.1	95.9	46.5	24.7	91.0	39.3	37.5	14.3	76.0	56.7	9.0	10.4
1983	176.1	97.7	48.9	29.6	89.9	36.8	37.4	15.6	86.2	60.8	11.4	13.9
1985	190.2	101.0	55.9	33.3	102.8	38.3	45.4	19.1	87.4	62.7	10.6	14.2
1987	195.9	99.3	66.5	30.1	106.9	36.0	53.7	17.2	89.0	63.3	12.8	12.9
1989	206.6	100.9	72.2	33.5	112.5	35.8	58.1	18.7	94.1	65.1	14.1	14.9
1991	210.6	103.4	73.9	33.2	111.6	34.5	57.9	19.2	99.0	69.0	16.0	14.0
1993	213.8	98.3	80.2	35.2	113.0	32.8	60.6	19.5	100.8	65.5	19.6	15.7
1995	217.5	100.2	83.0	34.3	112.8	31.7	62.4	18.7	104.8	68.5	20.7	15.6
1997	232.5	105.4	88.6	38.6	113.6	33.4	60.6	19.6	118.9	72.0	27.9	19.0
1999	240.2	108.6	91.4	40.2	117.2	33.3	64.3	19.7	122.9	75.3	27.1	20.5
Full-time faculty												
1973	103.3	69.9	19.8	13.6	55.7	31.1	16.3	8.3	47.6	38.8	3.5	5.3
1975	116.4	80.2	21.4	14.8	61.5	35.1	17.4	8.9	54.9	45.1	3.9	5.9
1977	125.6	78.4	25.8	21.3	64.7	32.1	20.0	12.6	61.0	46.4	5.8	8.8
1979	131.2	79.7	28.1	23.4	67.1	32.5	21.1	13.5	64.1	47.3	7.0	9.9
1981	141.9	92.1	31.8	18.0	73.8	37.9	25.1	10.7	68.2	54.1	6.7	7.4
1983	148.4	91.9	33.6	22.9	72.2	34.9	25.2	12.1	76.2	57.0	8.4	10.8
1985	156.9	94.9	39.5	22.5	80.6	35.9	31.5	13.3	76.2	59.0	8.0	9.2
1987	164.4	93.6	48.6	22.2	84.2	33.6	38.4	12.2	80.2	60.0	10.1	10.0
1989	169.8	93.9	51.6	24.2	86.6	32.9	40.7	13.0	83.2	61.1	10.9	11.2
1991	173.1	96.7	53.8	22.6	85.8	32.2	41.1	12.5	87.3	64.5	12.7	10.2
1993	172.4	91.4	56.9	24.1	84.4	30.5	41.5	12.4	88.1	61.0	15.3	11.7
1995	171.4	91.9	56.6	22.9	81.6	29.1	41.0	11.5	89.7	62.8	15.5	11.3
1997	178.4	95.4	58.0	24.9	81.5	29.9	39.5	12.1	96.8	65.5	18.5	12.8
1999	184.0	98.6	60.4	25.0	84.1	30.2	42.2	11.8	99.9	68.4	18.3	13.2
Postdoctorates												
1973	4.2	0.1	3.8	0.2	3.5	0.1	3.2	0.2	0.7	0.0	0.6	0.1
1975	6.2	0.1	5.7	0.4	5.3	0.1	4.9	0.3	0.9	0.1	0.8	0.1
1977	7.6	0.1	6.8	0.7	6.5	0.1	5.9	0.6	1.1	0.0	0.9	0.1
1979	8.1	0.2	6.9	1.0	6.8	0.1	5.8	0.9	1.3	0.1	1.1	0.1
1981	8.5	0.1	7.7	0.7	7.0	0.0	6.5	0.5	1.5	0.1	1.2	0.2
1983	8.3	0.4	7.1	0.7	6.7	0.2	6.1	0.4	1.6	0.3	1.1	0.3
1985	8.7	0.2	7.5	0.9	7.4	0.2	6.5	0.7	1.3	0.0	1.1	0.2
1987	9.3	0.2	8.4	0.7	8.1	0.2	7.3	0.6	1.2	0.0	1.0	0.2
1989	11.5	0.4	10.3	0.8	9.7	0.2	8.9	0.6	1.8	0.2	1.4	0.2
1991	9.9	0.1	9.2	0.6	8.3	0.1	7.8	0.4	1.5	0.1	1.3	0.1
1993	13.3	0.0	12.7	0.7	11.3	0.0	10.8	0.6	2.0	0.0	1.9	0.1
1995	16.8	0.6	15.1	1.1	13.6	0.3	12.4	0.9	3.2	0.3	2.7	0.2
1997	18.9	0.6	16.7	1.5	13.9	0.4	12.3	1.2	5.0	0.2	4.4	0.4
1999	18.5	0.4	16.6	1.5	14.1	0.3	12.6	1.2	4.5	0.1	4.0	0.3
All other types of positions												
1973	10.5	3.3	4.1	3.1	6.1	1.2	3.3	1.6	4.5	2.2	0.9	1.5
1975	11.5	3.5	3.8	4.2	6.6	1.3	3.3	2.2	4.8	2.1	0.6	2.0
1977	12.2	3.6	4.3	4.2	7.1	1.2	3.6	2.2	5.2	2.5	0.7	2.0
1979	15.9	3.9	6.2	5.8	9.6	1.4	5.2	3.0	6.3	2.5	1.0	2.8
1981	16.6	3.7	6.9	6.0	10.2	1.3	5.9	3.1	6.4	2.4	1.1	2.9
1983	19.4	5.4	8.1	5.9	11.0	1.8	6.0	3.1	8.5	3.6	2.1	2.8
1985	24.6	5.9	9.0	9.8	14.8	2.3	7.5	5.0	9.9	3.7	1.5	4.7
1987	22.1	5.5	9.6	7.1	14.5	2.2	7.9	4.4	7.6	3.2	1.6	2.7
1989	25.4	6.6	10.3	8.6	16.2	2.6	8.4	5.1	9.1	3.8	1.9	3.4
1991	27.6	6.6	10.9	10.1	17.5	2.2	9.0	6.4	10.1	4.4	2.0	3.7
1993	28.1	6.9	10.7	10.4	17.3	2.4	8.3	6.6	10.8	4.6	2.4	3.9
1995	29.4	7.7	11.4	10.3	17.5	2.3	8.9	6.2	11.8	5.3	2.4	4.1
1997	35.3	9.4	13.8	12.1	18.2	3.1	8.8	6.4	17.0	6.3	4.9	5.8
1999	37.5	9.5	14.3	13.7	19.0	2.8	9.5	6.8	18.5	6.7	4.9	6.9

NOTES: Details may not add to total because of rounding and omission of respondents with unreported work responsibility. Data exclude scientists and engineers with doctorates from foreign institutions. Institutions are designated by 1994 Carnegie classification code. (See Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education* (Princeton, NJ: Princeton University Press, 1994)).

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients, unpublished tabulations.

Appendix table 5-24.

U.S. and foreign-born doctoral scientists and engineers with U.S. doctorates at academic institutions, by type of position and field of degree: 1973-99

Field of degree and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
All positions														
Total S&E	117,957	134,051	145,445	155,314	167,068	176,082	190,218	195,896	206,619	210,580	213,758	217,543	232,505	240,169
U.S.	102,527	116,783	127,178	132,539	142,353	149,211	159,468	164,313	171,760	174,128	173,262	175,764	185,957	191,158
Foreign	13,531	15,293	16,405	21,708	23,647	25,685	29,724	30,802	33,978	36,261	40,470	41,779	46,548	49,011
Percent foreign	11.7	11.6	11.4	14.1	14.2	14.7	15.7	15.8	16.5	17.2	18.9	19.2	20.0	20.4
Physical sciences	22,064	23,585	24,952	24,623	25,336	25,133	27,006	27,169	27,692	27,681	28,644	29,350	30,211	30,948
U.S.	18,746	20,173	21,300	20,613	21,204	20,977	22,165	22,043	22,255	22,389	22,028	22,817	23,348	23,990
Foreign	2,916	3,037	3,213	3,843	3,959	3,953	4,683	5,003	5,304	5,270	6,616	6,533	6,863	6,958
Percent foreign	13.2	12.9	12.9	15.6	15.6	15.7	17.3	18.4	19.2	19.0	23.1	22.3	22.7	22.5
Mathematics	9,664	11,028	11,671	12,196	12,377	12,920	13,562	13,813	14,490	15,224	15,476	14,598	15,555	15,180
U.S.	8,439	9,624	10,295	10,217	10,216	10,526	10,878	11,168	11,340	11,579	11,451	10,873	11,326	10,955
Foreign	1,073	1,257	1,215	1,858	2,030	2,261	2,570	2,573	3,078	3,645	4,025	3,726	4,229	4,224
Percent foreign	11.1	11.4	10.4	15.2	16.4	17.5	19.0	18.6	21.2	23.9	26.0	25.5	27.2	27.8
Computer sciences	NA	NA	NA	80	280	488	785	1,070	1,494	1,955	2,527	3,148	3,325	3,700
U.S.	NA	NA	NA	—	196	343	531	764	931	1,095	1,472	1,823	1,877	2,321
Foreign	NA	NA	NA	—	84	145	254	306	563	860	1,055	1,324	1,447	1,379
Percent foreign	NA	NA	NA	—	30	30	32	29	38	44	42	42	44	37
Earth, atmospheric, and ocean sciences	3,420	3,899	4,204	4,236	4,581	4,805	5,246	5,578	5,861	6,050	6,435	6,419	7,327	7,792
U.S.	3,112	3,453	3,708	3,721	4,001	4,164	4,487	4,853	5,005	5,278	5,440	5,328	5,944	6,554
Foreign	271	392	441	484	532	607	714	678	789	771	995	1,091	1,382	1,238
Percent foreign	7.9	10.1	10.5	11.4	11.6	12.6	13.6	12.2	13.5	12.8	15.5	17.0	18.9	15.9
Life sciences	34,854	39,365	42,601	47,007	51,322	54,825	58,679	61,247	64,755	66,939	68,193	71,616	77,299	81,862
U.S.	30,928	34,762	37,806	40,717	44,364	47,714	50,984	53,092	56,014	57,802	57,788	60,479	64,003	66,384
Foreign	3,276	3,943	4,257	5,910	6,506	6,645	7,301	7,848	8,385	9,109	10,405	11,137	13,296	15,478
Percent foreign	9.4	10.0	10.0	12.6	12.7	12.1	12.4	12.8	12.9	13.6	15.3	15.6	17.2	18.9
Psychology	12,209	14,768	16,166	17,727	20,117	21,012	23,094	23,737	25,003	25,175	24,964	26,149	27,318	28,970
U.S.	11,265	13,688	15,080	16,488	18,568	19,476	21,277	22,065	23,210	23,393	23,227	24,385	25,230	26,790
Foreign	750	854	929	1,136	1,468	1,428	1,667	1,583	1,687	1,686	1,717	1,764	2,087	2,180
Percent foreign	6.1	5.8	5.7	6.4	7.3	6.8	7.2	6.7	6.7	6.7	6.9	6.7	7.6	7.5
Social sciences	23,376	27,985	31,094	33,600	36,914	38,765	41,909	42,113	44,499	44,786	44,376	42,469	44,901	46,210
U.S.	20,068	24,126	27,076	28,632	31,319	32,797	35,229	35,909	37,676	37,535	37,072	35,282	36,765	37,504
Foreign	2,948	3,472	3,666	4,749	5,432	5,772	6,553	6,092	6,707	7,231	7,304	7,187	8,136	8,706
Percent foreign	12.6	12.4	11.8	14.1	14.7	14.9	15.6	14.5	15.1	16.1	16.5	16.9	18.1	18.8
Engineering	12,370	13,421	14,757	15,845	16,141	18,134	19,937	21,169	22,825	22,771	23,143	23,793	26,570	25,508
U.S.	9,969	10,957	11,913	12,104	12,485	13,214	13,917	14,419	15,329	15,056	14,783	14,776	17,462	16,660
Foreign	2,297	2,338	2,684	3,695	3,636	4,874	5,982	6,719	7,465	7,687	8,353	9,016	9,108	8,848
Percent foreign	18.6	17.4	18.2	23.3	22.5	26.9	30.0	31.7	32.7	33.8	36.1	37.9	34.3	34.7
Full-time senior faculty														
Total S&E	73,979	84,255	90,725	97,174	107,302	115,561	119,738	127,279	131,035	133,029	128,630	127,326	131,925	136,675
U.S.	64,212	73,093	79,268	83,002	91,548	98,427	101,257	108,285	110,908	113,460	108,382	107,380	109,940	113,235
Foreign	8,213	9,566	9,902	13,262	14,921	16,270	17,891	18,461	19,571	19,507	20,228	19,946	21,985	23,440
Percent foreign	11.3	11.6	11.1	13.8	14.0	14.2	15.0	14.6	15.0	14.7	15.7	16.7	17.2	
Physical sciences	13,029	14,597	15,280	15,955	16,839	17,122	17,705	18,336	17,751	17,566	16,915	16,408	16,671	16,644
U.S.	11,092	12,464	13,022	13,604	14,293	14,391	14,863	15,345	14,829	14,944	14,060	13,863	14,002	13,859
Foreign	1,605	1,809	1,894	2,210	2,386	2,534	2,742	2,884	2,820	2,600	2,855	2,545	2,668	2,786

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-24.

U.S. and foreign-born doctoral scientists and engineers with U.S. doctorates at academic institutions, by type of position and field of degree: 1973–99

Field of degree and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Percent foreign	12.3	12.4	12.4	13.9	14.2	14.8	15.5	15.7	15.9	14.8	16.9	15.5	16.0	16.7
Mathematics	5,926	6,900	7,639	8,293	9,080	9,724	10,012	10,538	10,904	11,799	11,465	10,589	10,843	10,776
U.S.	5,133	5,961	6,677	6,998	7,520	8,027	8,102	8,767	8,926	9,581	9,114	8,376	8,196	8,069
Foreign	665	818	811	1,177	1,443	1,597	1,826	1,710	1,924	2,218	2,351	2,213	2,646	2,707
Percent foreign	11.2	11.9	10.6	14.2	15.9	16.4	18.2	16.2	17.6	18.8	20.5	20.9	24.4	25.1
Computer sciences	NA	NA	NA	—	—	76	88	290	430	880	886	1,665	1,677	2,121
U.S.	NA	NA	NA	—	—	52	—	216	328	477	577	1,054	928	1,265
Foreign	NA	NA	NA	—	—	—	53	74	102	402	309	611	749	856
Percent foreign	NA	NA	NA	—	—	—	—	25.5	23.7	45.7	34.9	36.7	44.7	40.4
Earth, atmospheric, and ocean sciences	2,228	2,501	2,749	2,793	2,861	3,081	3,129	3,239	3,591	3,607	3,682	3,600	3,757	4,127
U.S.	2,049	2,243	2,419	2,444	2,479	2,644	2,713	2,864	3,091	3,285	3,250	3,166	3,201	3,581
Foreign	147	204	278	318	342	403	380	343	465	322	432	433	556	546
Percent foreign	6.6	8.2	10.1	11.4	12.0	13.1	12.1	10.6	12.9	8.9	11.7	12.0	14.8	13.2
Life sciences	20,973	23,392	24,573	27,006	29,565	32,632	33,697	35,809	36,416	37,444	35,829	37,181	38,311	40,640
U.S.	18,756	20,872	22,022	23,844	26,025	28,719	29,495	31,504	32,053	33,406	31,709	33,164	33,921	35,823
Foreign	1,688	1,970	2,119	2,860	3,249	3,651	3,979	4,122	4,160	4,027	4,120	4,018	4,390	4,817
Percent foreign	8.0	8.4	8.6	10.6	11.0	11.2	11.8	11.5	11.4	10.8	11.5	10.8	11.5	11.9
Psychology	7,250	8,683	9,062	9,868	11,682	12,845	13,507	14,303	14,991	15,337	14,261	14,521	15,300	15,644
U.S.	6,580	7,947	8,416	9,195	10,686	11,866	12,388	13,245	13,919	14,375	13,412	13,666	14,232	14,509
Foreign	535	579	530	598	924	902	1,025	1,016	994	932	829	855	1,068	1,135
Percent foreign	7.4	6.7	5.8	6.1	7.9	7.0	7.6	7.1	6.6	6.1	5.8	5.9	7.0	7.3
Social sciences	15,860	18,456	20,678	21,691	24,884	26,337	27,705	29,459	31,067	30,595	29,920	28,106	28,798	30,127
U.S.	13,536	15,708	17,925	18,121	20,929	22,211	23,316	25,159	26,388	26,218	25,373	23,893	24,142	25,050
Foreign	2,030	2,462	2,459	3,373	3,818	3,974	4,336	4,213	4,615	4,376	4,548	4,213	4,656	5,076
Percent foreign	12.8	13.3	11.9	15.6	15.3	15.1	15.7	14.3	14.9	14.3	15.2	15.0	16.2	16.8
Engineering	8,713	9,726	10,744	11,566	12,374	13,744	13,895	15,305	15,885	15,801	15,672	15,257	16,569	16,596
U.S.	7,066	7,898	8,787	8,794	9,601	10,517	10,345	11,185	11,374	11,173	10,888	10,198	11,318	11,078
Foreign	1,543	1,724	1,811	2,726	2,757	3,185	3,550	4,099	4,491	4,628	4,784	5,059	5,251	5,517
Percent foreign	17.7	17.7	16.9	23.6	22.3	23.2	25.5	26.8	28.3	29.3	30.5	33.2	31.7	33.2
Full-time junior faculty														
Total S&E	29,317	32,095	34,896	34,025	34,629	32,840	37,159	37,163	38,729	40,100	43,775	44,045	46,438	47,368
U.S.	26,040	28,753	31,368	29,256	29,906	27,718	30,597	30,694	30,996	30,825	33,468	34,342	35,557	36,720
Foreign	3,196	3,218	3,412	4,738	4,631	5,024	6,383	6,368	7,584	9,183	10,300	9,703	10,881	10,647
Percent foreign	10.9	10.1	9.8	13.9	13.4	15.3	17.3	17.2	19.7	23.0	23.5	22.0	23.4	22.5
Physical sciences	4,800	4,341	4,765	4,011	3,658	3,058	3,516	3,623	3,729	4,095	4,341	4,465	4,774	5,083
U.S.	4,220	3,855	4,223	3,330	3,142	2,610	2,885	3,062	3,019	3,051	3,166	3,466	3,516	3,739
Foreign	556	467	512	681	516	448	626	557	695	1,044	1,175	999	1,258	1,344
Percent foreign	11.6	10.8	10.7	17.0	14.1	14.7	17.8	15.4	18.6	25.5	27.1	22.4	26.4	26.4
Mathematics	3,326	3,495	3,275	3,100	2,588	2,549	2,731	2,391	2,639	2,418	3,206	2,432	2,786	2,364
U.S.	2,958	3,137	2,994	2,577	2,082	1,916	2,064	1,865	1,671	1,339	1,747	1,517	1,802	1,710
Foreign	359	349	271	520	506	611	664	524	950	1,079	1,459	915	984	654
Percent foreign	10.8	10.0	8.3	16.8	19.6	24.0	24.3	21.9	36.0	44.6	45.5	37.6	35.3	27.7
Computer sciences	NA	NA	NA	57	237	334	577	598	904	965	1,422	1,179	1,277	1,186
U.S.	NA	NA	NA	—	170	250	411	399	473	510	740	588	683	760
Foreign	NA	NA	NA	—	67	84	166	199	431	455	682	591	594	426
Percent foreign	NA	NA	NA	—	28.3	25.1	28.8	33.3	47.7	47.2	48.0	50.1	46.5	35.9

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-24.

U.S. and foreign-born doctoral scientists and engineers with U.S. doctorates at academic institutions, by type of position and field of degree: 1973-99

Field of degree and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Earth, atmospheric, and ocean sciences														
ocean sciences	775	931	877	703	932	884	1,068	1,123	1,111	922	863	1,080	1,302	1,468
U.S.	694	823	786	628	830	809	922	979	930	763	623	881	1,055	1,271
Foreign	81	108	91	75	94	75	144	144	179	159	240	199	247	196
Percent foreign.....	10.5	11.6	10.4	10.7	10.1	8.5	13.5	12.8	16.1	17.2	27.8	18.4	18.9	13.4
Life sciences	8,533	9,660	10,313	10,304	11,325	10,847	11,900	12,311	12,849	13,655	14,974	15,614	16,896	17,499
U.S.	7,719	8,665	9,495	8,833	9,930	9,667	10,578	10,737	11,275	11,605	12,723	13,203	13,871	13,895
Foreign	788	948	784	1,452	1,343	1,127	1,257	1,526	1,503	2,034	2,251	2,410	3,026	3,603
Percent foreign.....	9.2	9.8	7.6	14.1	11.9	10.4	10.6	12.4	11.7	14.9	15.0	15.4	17.9	20.6
Psychology	3,578	4,159	4,806	4,434	4,763	4,460	4,950	4,936	5,217	5,405	5,212	5,534	5,497	6,222
U.S.	3,403	3,964	4,492	4,124	4,516	4,218	4,620	4,628	4,773	5,019	4,781	5,092	5,020	5,695
Foreign	160	183	301	305	238	226	290	271	416	320	431	442	477	527
Percent foreign.....	4.5	4.4	6.3	6.9	5.0	5.1	5.9	5.5	8.0	5.9	8.3	8.0	8.7	8.5
Social sciences	5,735	7,056	8,152	8,649	8,797	8,053	8,404	8,181	7,939	8,378	9,280	8,962	8,933	9,073
U.S.	4,997	6,258	7,147	7,599	7,529	6,751	7,025	6,863	6,566	6,264	7,301	6,808	6,621	6,867
Foreign	731	761	976	1,046	1,245	1,299	1,335	1,318	1,360	2,114	1,979	2,153	2,311	2,206
Percent foreign.....	12.7	10.8	12.0	12.1	14.2	16.1	15.9	16.1	17.1	25.2	21.3	24.0	25.9	24.3
Engineering	2,570	2,453	2,708	2,767	2,329	2,655	4,013	4,000	4,341	4,263	4,478	4,779	4,974	4,474
U.S.	2,049	2,051	2,231	2,129	1,707	1,497	2,092	2,161	2,289	2,275	2,388	2,787	2,990	2,783
Foreign	521	402	477	638	622	1,154	1,901	1,829	2,050	1,978	2,082	1,993	1,984	1,691
Percent foreign.....	20.3	16.4	17.6	23.1	26.7	43.5	47.4	45.7	47.2	46.4	46.5	41.7	39.9	37.8
Full-time other														
Total S&E	7,570	8,272	8,820	11,419	12,592	13,377	18,100	16,413	19,188	20,202	22,168	23,854	26,389	29,335
U.S.	6,382	7,253	7,574	9,876	10,813	10,983	15,372	13,705	16,004	16,709	18,564	19,041	21,808	23,688
Foreign	1,042	880	1,159	1,513	1,711	2,324	2,662	2,675	3,091	3,483	3,604	4,813	4,582	5,647
Percent foreign.....	14.0	10.8	13.3	13.3	13.7	17.5	14.8	16.3	16.2	17.2	16.3	20.2	17.4	19.2
Physical sciences	1,939	1,926	2,111	1,990	2,387	2,535	3,015	2,633	3,282	3,223	3,670	3,822	4,627	5,566
U.S.	1,590	1,691	1,860	1,683	2,027	1,989	2,593	2,066	2,607	2,597	2,759	2,930	3,595	4,441
Foreign	337	232	248	306	357	546	416	561	671	626	911	891	1,033	1,125
Percent foreign.....	17.4	12.0	11.7	15.4	15.0	21.5	13.8	21.3	20.4	19.4	24.8	23.3	22.3	20.2
Mathematics	232	335	436	358	372	299	510	445	486	649	456	613	813	761
U.S.	178	266	367	280	318	282	489	300	402	373	344	423	661	505
Foreign	—	52	69	78	—	—	—	145	84	277	112	190	152	256
Percent foreign.....	—	15.5	15.8	21.8	—	—	—	32.6	17.3	42.6	24.6	31.0	18.7	33.6
Computer sciences	NA	NA	NA	—	—	56	99	143	127	103	180	219	179	266
U.S.	NA	NA	NA	—	—	—	66	112	120	101	142	135	143	183
Foreign	NA	NA	NA	—	—	—	—	—	—	—	—	84	—	83
Percent foreign.....	NA	NA	NA	—	—	—	—	—	—	—	—	38.3	—	31.2
Earth, atmospheric, and ocean sciences	293	284	339	506	499	512	702	772	694	900	1,100	1,078	1,424	1,376
U.S.	264	256	312	437	460	436	570	636	598	822	1,004	818	1,152	1,032
Foreign	—	—	—	69	—	76	125	136	87	78	96	260	272	344
Percent foreign.....	—	—	—	13.6	—	14.8	17.8	17.6	12.5	8.6	8.7	24.1	19.1	25.0
Life sciences	2,536	2,354	2,759	3,871	4,022	4,564	6,166	5,968	6,716	7,231	7,668	8,441	8,369	9,482
U.S.	2,077	2,022	2,220	3,122	3,162	3,602	5,215	4,995	5,524	6,010	6,473	6,857	6,998	7,507
Foreign	402	291	499	720	809	895	917	951	1,151	1,222	1,195	1,584	1,371	1,976
Percent foreign.....	15.9	12.4	18.1	18.6	20.1	19.6	14.9	15.9	17.1	16.9	15.6	18.8	16.4	20.8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-24.

**U.S. and foreign-born doctoral scientists and engineers with U.S. doctorates at academic institutions, by type of position and field of degree:
1973–99**

Field of degree and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Psychology	813	1,032	1,202	1,846	2,239	2,151	2,870	2,804	2,931	2,810	3,895	3,925	4,037	4,601
U.S.	755	954	1,159	1,727	2,076	1,959	2,671	2,585	2,767	2,562	3,565	3,564	3,722	4,285
Foreign	—	—	—	119	163	192	199	214	164	249	330	360	315	316
Percent foreign	—	—	—	6.4	7.3	8.9	6.9	7.6	5.6	8.8	8.5	9.2	7.8	6.9
Social sciences	991	1,461	1,193	1,932	1,976	2,196	3,221	2,578	3,463	3,524	3,687	3,624	3,881	4,310
U.S.	887	1,303	1,038	1,829	1,754	1,929	2,632	2,278	2,973	3,161	3,295	3,096	3,283	3,551
Foreign	77	135	131	103	219	267	582	300	451	362	393	528	598	759
Percent foreign	7.8	9.2	11.0	5.3	11.1	12.2	18.1	11.6	13.0	10.3	10.7	14.6	15.4	17.6
Engineering	766	880	780	916	1,093	1,064	1,517	1,070	1,489	1,761	1,513	2,133	3,060	2,972
U.S.	631	761	618	798	1,016	767	1,136	733	1,013	1,084	982	1,217	2,255	2,184
Foreign	135	97	148	118	77	297	379	337	476	668	530	916	806	788
Percent foreign	17.6	11.0	19.0	12.9	7.0	27.9	25.0	31.5	32.0	37.9	35.1	42.9	26.3	26.5
Postdoctorates														
Total S&E	4,159	6,190	7,630	8,149	8,526	8,282	8,673	9,332	11,500	9,859	13,335	16,840	18,868	18,546
U.S.	3,404	4,840	6,018	6,462	6,643	6,719	6,801	6,694	8,327	6,630	8,131	10,445	11,400	11,155
Foreign	725	1,321	1,580	1,661	1,861	1,520	1,837	2,594	3,125	3,220	5,204	6,395	7,468	7,392
Percent foreign	17.6	21.4	20.8	20.4	21.9	18.4	21.3	27.9	27.3	32.7	39.0	38.0	39.6	39.9
Physical sciences	1,660	2,122	2,205	1,918	1,867	1,426	1,895	1,958	2,402	1,870	3,035	3,931	3,167	2,928
U.S.	1,323	1,653	1,683	1,396	1,271	1,087	1,215	1,054	1,360	998	1,624	2,087	1,586	1,519
Foreign	325	456	509	515	594	333	677	904	1,036	872	1,411	1,843	1,582	1,410
Percent foreign	19.6	21.5	23.1	26.9	31.8	23.4	35.7	46.2	43.1	46.6	46.5	46.9	49.9	48.1
Mathematics	—	73	81	146	102	101	83	261	192	59	—	455	457	587
U.S.	—	63	60	125	86	97	65	95	98	—	—	171	211	253
Foreign	—	—	—	—	—	—	—	166	94	59	—	283	246	334
Percent foreign	—	—	—	—	—	—	—	63.6	49.0	—	—	62.3	53.7	56.8
Computer sciences	NA	NA	NA	—	—	—	—	—	—	—	—	80	111	70
U.S.	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	60
Foreign	NA	NA	NA	—	—	—	—	—	—	—	—	—	64	—
Percent foreign	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—
Earth, atmospheric, and ocean sciences	72	92	166	134	185	185	176	271	263	342	496	468	620	523
U.S.	55	55	129	119	137	145	129	215	202	192	316	282	378	444
Foreign	—	—	—	—	—	—	—	—	—	151	180	185	242	79
Percent foreign	—	—	—	—	—	—	—	—	—	44.0	36.4	39.6	39.1	15.0
Life sciences	1,912	3,027	3,972	4,670	5,241	5,093	5,245	5,555	6,829	6,355	8,154	9,190	10,826	11,684
U.S.	1,614	2,360	3,208	3,872	4,251	4,259	4,289	4,465	5,409	4,685	5,478	6,199	6,742	7,024
Foreign	280	651	749	779	974	802	929	1,054	1,391	1,671	2,677	2,991	4,085	4,660
Percent foreign	14.6	21.5	18.9	16.7	18.6	15.7	17.7	19.0	20.4	26.3	32.8	32.5	37.7	39.9
Psychology	159	379	497	610	637	569	739	656	844	474	406	1,074	1,344	1,180
U.S.	145	369	473	591	588	540	722	621	810	411	341	989	1,136	1,048
Foreign	—	—	—	—	—	—	—	—	—	63	66	84	208	133
Percent foreign	—	—	—	—	—	—	—	—	—	13.2	16.2	7.8	15.5	11.3
Social sciences	132	243	320	329	296	588	348	129	366	285	165	432	688	484
U.S.	121	189	288	192	273	477	338	113	248	200	81	331	569	371
Foreign	—	54	—	137	—	111	—	—	118	86	84	101	119	113
Percent foreign	—	22.2	—	41.6	—	18.9	—	—	32.2	30.0	51.1	23.4	17.3	23.4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-24.

**U.S. and foreign-born doctoral scientists and engineers with U.S. doctorates at academic institutions, by type of position and field of degree:
1973-99**

Field of degree and place of birth	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Engineering	183	254	389	321	176	318	185	485	581	474	1,001	1,211	1,654	1,090
U.S.	107	151	177	158	—	112	—	116	200	145	236	337	731	436
Foreign	76	103	212	163	146	206	142	369	381	320	765	874	923	654
Percent foreign	41.5	40.6	54.5	50.8	—	64.8	—	76.1	65.6	67.5	76.4	72.2	55.8	60.0
Part-time total														
Total S&E	2,932	3,239	3,374	4,547	4,019	6,022	6,548	5,709	6,167	7,390	5,850	5,478	8,885	8,245
U.S.	2,489	2,844	2,950	3,943	3,443	5,364	5,441	4,935	5,525	6,503	4,716	4,556	7,253	6,361
Foreign	355	308	352	534	523	547	951	704	607	867	1,134	922	1,633	1,884
Percent foreign	12.5	9.8	10.7	11.9	13.2	9.3	14.9	12.5	9.9	11.8	19.4	16.8	18.4	22.9
Physical sciences	636	599	591	749	585	992	875	619	528	926	683	725	972	727
U.S.	521	510	512	600	471	900	609	516	440	799	420	471	649	433
Foreign	93	73	50	131	106	92	222	97	82	128	263	254	322	294
Percent foreign	14.6	12.2	8.5	17.5	18.1	9.3	25.4	15.7	15.5	13.8	38.5	35.1	33.2	40.4
Mathematics	139	225	240	299	235	247	226	178	269	299	304	510	657	692
U.S.	131	197	197	237	210	204	158	141	243	287	202	385	456	419
Foreign	—	—	—	62	—	—	51	—	—	—	102	124	201	273
Percent foreign	—	—	—	20.7	—	—	22.6	—	—	—	33.7	24.4	30.6	39.5
Computer science	NA	NA	NA	—	—	—	—	—	—	—	—	—	82	58
U.S.	NA	NA	NA	—	—	—	—	—	—	—	—	—	77	53
Foreign	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—
Percent foreign	NA	NA	NA	—	—	—	—	—	—	—	—	—	—	—
Earth, atmospheric, and ocean sciences	52	91	73	100	104	143	171	173	202	279	295	194	224	297
U.S.	—	76	62	93	95	130	153	159	184	217	248	180	158	225
Foreign	—	—	—	—	—	—	—	—	—	62	—	—	66	73
Percent foreign	—	—	—	—	—	—	—	—	—	22.4	—	—	29.4	24.5
Life sciences	900	932	984	1,156	1,169	1,689	1,671	1,604	1,945	2,252	1,569	1,190	2,897	2,557
U.S.	762	843	861	1,046	996	1,467	1,407	1,391	1,753	2,097	1,406	1,056	2,473	2,134
Foreign	118	83	106	99	131	170	219	195	180	156	163	134	424	422
Percent foreign	13.1	8.9	10.8	8.6	11.2	10.1	13.1	12.2	9.3	6.9	10.4	11.3	14.6	16.5
Psychology	409	515	599	969	796	987	1,028	1,038	1,020	1,149	1,190	1,095	1,140	1,322
U.S.	382	454	540	851	702	893	876	986	941	1,026	1,129	1,073	1,121	1,254
Foreign	—	—	—	95	94	84	141	—	79	123	61	—	—	69
Percent foreign	—	—	—	9.8	11.8	8.5	13.7	—	7.7	10.7	5.1	—	—	5.2
Social sciences	658	769	751	999	961	1,591	2,231	1,766	1,664	2,004	1,324	1,346	2,601	2,216
U.S.	527	668	678	891	834	1,429	1,918	1,496	1,501	1,691	1,024	1,154	2,150	1,665
Foreign	99	60	68	90	127	121	290	245	163	293	300	192	451	551
Percent foreign	15.0	7.8	9.1	9.0	13.2	7.6	13.0	13.9	9.8	14.6	22.7	14.3	17.3	24.9
Engineering	138	108	136	275	169	353	327	309	529	472	480	413	313	376
U.S.	116	96	100	225	135	321	301	224	453	379	288	238	168	178
Foreign	—	—	—	50	—	—	—	85	67	93	192	175	144	197
Percent foreign	—	—	—	18.2	—	—	—	27.5	12.7	19.7	40.0	42.4	46.2	52.5

NA = not available; — = sample too small

NOTES: Excludes those with foreign-earned doctorates. Small number of unknowns through 1987 not shown.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), Survey of Doctorate Recipients, unpublished tabulations.

Appendix table 5-25.

Doctoral academic scientists and engineers, by type of position and Carnegie classification and administrative control of institution: 1973–99

(Thousands)

Year	All academic institutions	Research universities	Doctorate-granting	Comprehensive	Medical schools	Liberal arts colleges
Total public and private institutions						
All positions						
1973	118.0	65.2	14.0	21.3	3.3	8.8
1975	134.1	73.4	15.9	24.8	4.3	10.4
1977	145.4	78.2	17.2	26.5	4.9	10.8
1979	155.3	83.5	17.2	26.9	5.9	11.3
1981	167.1	91.0	18.8	30.5	7.2	12.0
1983	176.1	89.9	19.5	31.6	7.0	12.6
1985	190.2	102.8	21.2	35.6	8.3	14.0
1987	195.9	106.9	22.2	36.0	9.0	14.6
1989	206.6	112.5	23.5	38.4	9.7	15.3
1991	210.6	111.6	24.9	39.5	9.6	15.8
1993	213.8	113.0	24.2	39.5	10.8	16.0
1995	217.5	112.8	25.0	41.5	11.2	15.8
1997	232.5	113.6	25.8	42.0	9.8	17.3
1999	240.2	117.2	26.3	43.6	11.9	18.5
Full-time senior faculty						
1973	74.0	41.0	9.3	14.5	1.6	5.6
1975	84.3	45.6	10.9	17.0	2.0	6.3
1977	90.7	48.0	11.6	18.9	2.2	6.6
1979	97.2	50.0	11.6	19.5	2.6	7.2
1981	107.3	55.6	13.4	22.5	3.6	8.1
1983	115.6	56.2	14.5	24.0	3.8	8.4
1985	119.7	61.0	15.0	26.3	4.0	9.3
1987	127.3	65.0	16.4	27.5	4.6	10.3
1989	131.0	66.4	16.4	28.7	4.8	10.8
1991	133.0	65.6	17.0	29.8	4.7	11.2
1993	128.6	62.6	16.2	29.0	5.3	10.9
1995	127.3	61.1	16.0	29.1	5.1	10.7
1997	131.9	61.5	16.9	28.4	4.3	11.1
1999	136.7	64.2	17.4	29.6	5.7	12.3
Full-time junior faculty						
1973	29.3	14.7	3.8	5.8	1.2	2.5
1975	32.1	15.9	3.8	6.1	1.6	3.1
1977	34.9	16.7	4.4	6.3	1.9	3.3
1979	34.0	17.1	4.2	5.6	2.1	2.9
1981	34.6	18.1	3.9	6.3	2.0	2.7
1983	32.8	16.0	3.5	5.2	1.9	2.9
1985	37.2	19.7	3.6	6.0	2.5	3.2
1987	37.2	19.3	3.9	6.3	2.6	3.1
1989	38.7	20.2	4.4	6.5	2.9	3.1
1991	40.1	20.2	5.1	6.8	3.1	2.9
1993	43.8	21.8	5.4	7.4	3.2	3.7
1995	44.0	20.5	5.6	8.2	3.3	3.9
1997	46.4	20.0	5.1	9.2	3.1	4.4
1999	47.4	20.0	5.4	9.9	3.1	4.5
Full-time nonfaculty except postdoctorates						
1973	7.6	4.6	0.4	0.5	0.2	0.4
1975	8.3	5.1	0.6	1.0	0.2	0.6
1977	8.8	5.6	0.5	0.6	0.2	0.5
1979	11.4	7.5	0.8	0.9	0.4	0.7
1981	12.6	8.1	0.8	1.1	0.4	0.8
1983	13.4	8.1	0.7	1.1	0.6	0.7
1985	18.1	11.7	1.6	2.0	0.7	0.9
1987	16.4	11.5	1.1	1.3	0.7	0.7
1989	19.2	13.2	1.3	1.9	1.0	0.8
1991	20.2	13.9	1.7	1.5	0.7	1.0
1993	22.2	14.6	1.7	1.9	1.1	0.9
1995	23.9	15.7	1.9	2.2	1.2	0.8
1997	26.4	15.1	1.9	2.0	0.8	0.9
1999	29.3	16.4	2.0	2.2	1.0	0.9

See explanatory notes, if any, and SOURCE, at end of table.

Appendix table 5-25.

Doctoral academic scientists and engineers, by type of position and Carnegie classification and administrative control of institution: 1973–99

(Thousands)

Year	All academic institutions	Research universities	Doctorate-granting	Comprehensive	Medical schools	Liberal arts colleges
Postdoctorates						
1973	4.2	3.5	0.2	0.1	0.2	0.0
1975	6.2	5.3	0.2	0.1	0.4	0.0
1977	7.6	6.5	0.3	0.1	0.5	0.1
1979	8.1	6.8	0.3	0.2	0.6	0.1
1981	8.5	7.0	0.3	0.1	1.1	0.0
1983	8.3	6.7	0.2	0.3	0.6	0.0
1985	8.7	7.4	0.3	0.0	0.8	0.1
1987	9.3	8.1	0.2	0.0	0.8	0.0
1989	11.5	9.7	0.5	0.1	0.9	0.1
1991	9.9	8.3	0.3	0.2	0.8	0.0
1993	13.3	11.3	0.5	0.1	1.1	0.0
1995	16.8	13.6	0.8	0.4	1.4	0.1
1997	18.9	13.9	0.9	0.6	1.4	0.1
1999	18.5	14.1	0.8	0.1	1.7	0.2
Part-time positions						
1973	2.9	1.5	0.3	0.4	0.1	0.3
1975	3.2	1.5	0.4	0.5	0.2	0.3
1977	3.4	1.5	0.4	0.6	0.1	0.3
1979	4.5	2.1	0.4	0.8	0.2	0.5
1981	4.0	2.1	0.3	0.6	0.1	0.4
1983	6.0	2.9	0.5	1.0	0.2	0.6
1985	6.5	3.1	0.6	1.2	0.3	0.6
1987	5.7	3.0	0.6	0.9	0.3	0.5
1989	6.2	3.0	0.9	1.2	0.2	0.4
1991	7.4	3.6	0.8	1.2	0.3	0.8
1993	5.9	2.7	0.5	1.0	0.1	0.4
1995	5.5	1.8	0.7	1.6	0.2	0.3
1997	8.9	3.1	1.0	1.7	0.2	0.7
1999	8.2	2.6	0.7	1.8	0.4	0.6
Public universities and colleges						
All positions						
1973	80.9	48.8	10.2	16.2	2.3	1.0
1975	93.0	54.8	11.4	18.8	3.1	1.3
1977	100.4	58.6	12.2	20.4	3.6	1.5
1979	104.3	62.9	11.8	19.9	4.3	1.5
1981	113.9	66.7	13.3	22.4	5.4	1.7
1983	115.9	66.6	13.7	23.6	5.2	1.9
1985	130.2	75.3	15.0	26.2	5.9	2.2
1987	135.3	79.0	15.3	26.8	6.1	2.5
1989	141.2	81.7	16.5	28.2	6.6	2.7
1991	142.6	80.8	17.3	28.4	6.8	2.6
1993	144.6	81.9	16.9	28.9	7.4	2.6
1995	145.7	80.8	17.7	30.2	7.7	2.4
1997	148.7	82.9	18.4	31.0	6.4	3.0
1999	153.1	83.6	18.5	31.5	8.2	2.7
Full-time senior faculty						
1973	52.4	31.8	6.9	11.0	1.1	0.6
1975	60.2	35.4	8.1	12.9	1.4	0.7
1977	65.2	37.7	8.5	14.6	1.6	0.9
1979	66.9	39.2	8.1	14.7	1.9	1.0
1981	76.2	43.3	9.7	17.0	2.7	1.2
1983	79.7	44.3	10.4	18.2	2.9	1.3
1985	85.0	47.2	10.6	19.8	3.0	1.5
1987	90.7	50.7	11.6	20.5	3.3	1.8
1989	92.6	51.5	11.6	21.3	3.3	1.8
1991	93.7	50.8	12.1	21.9	3.5	2.0
1993	90.6	48.5	11.6	21.5	3.8	2.0
1995	88.7	47.1	11.6	21.4	3.7	1.6
1997	89.8	48.3	12.3	21.0	3.0	2.0
1999	92.5	48.7	12.5	21.6	4.0	1.9

See explanatory notes, if any, and SOURCE, at end of table.

Appendix table 5-25.

Doctoral academic scientists and engineers, by type of position and Carnegie classification and administrative control of institution: 1973–99

(Thousands)

Year	All academic institutions	Research universities	Doctorate-granting	Comprehensive	Medical schools	Liberal arts colleges
Full-time junior faculty						
1973	20.4	11.0	2.7	4.5	0.9	0.3
1975	22.1	11.8	2.6	4.9	1.2	0.4
1977	23.7	12.4	2.9	4.9	1.4	0.4
1979	22.4	12.8	2.8	3.8	1.4	0.3
1981	22.7	12.5	2.7	4.2	1.5	0.4
1983	20.2	11.2	2.3	3.7	1.3	0.5
1985	24.1	13.9	2.5	4.1	1.6	0.4
1987	25.0	14.0	2.6	4.5	1.6	0.5
1989	25.4	14.2	3.1	4.6	1.8	0.5
1991	25.8	13.7	3.5	4.6	2.0	0.5
1993	27.9	14.9	3.6	5.2	2.1	0.5
1995	28.3	14.0	3.8	6.0	2.4	0.6
1997	28.2	13.7	3.7	6.6	1.9	0.7
1999	29.4	13.8	3.7	7.1	2.0	0.6
Full-time nonfaculty except postdoctorates						
1973	4.1	3.0	0.3	0.4	0.2	0.0
1975	5.2	3.3	0.4	0.7	0.1	0.1
1977	5.1	3.7	0.3	0.4	0.2	0.1
1979	7.4	5.1	0.6	0.8	0.4	0.1
1981	8.0	5.4	0.6	0.9	0.3	0.1
1983	7.8	5.4	0.5	0.9	0.4	0.1
1985	11.9	7.9	1.3	1.4	0.4	0.2
1987	10.2	7.3	0.7	1.0	0.4	0.2
1989	12.5	8.5	0.9	1.4	0.7	0.2
1991	13.4	9.4	1.1	1.3	0.5	0.1
1993	14.1	9.4	1.0	1.4	0.8	0.1
1995	15.3	10.2	1.3	1.7	0.8	0.1
1997	15.4	10.7	1.4	1.6	0.5	0.2
1999	16.5	11.5	1.3	1.6	0.6	0.2
Postdoctorates						
1973	2.3	2.0	0.1	0.1	0.1	0.0
1975	3.6	3.1	0.1	0.1	0.3	0.0
1977	4.4	3.8	0.2	0.0	0.3	0.0
1979	4.8	4.1	0.1	0.1	0.5	0.0
1981	4.8	3.9	0.1	0.1	0.8	0.0
1983	4.6	3.7	0.2	0.2	0.4	0.0
1985	4.7	4.0	0.2	0.0	0.6	0.0
1987	5.3	4.5	0.1	0.0	0.5	0.0
1989	6.4	5.3	0.3	0.1	0.6	0.1
1991	5.3	4.3	0.2	0.2	0.5	0.0
1993	8.2	7.0	0.4	0.1	0.7	0.0
1995	9.9	8.1	0.5	0.3	0.8	0.0
1997	9.8	8.0	0.5	0.5	0.8	0.0
1999	9.9	7.9	0.6	0.1	1.2	0.0
Part-time positions						
1973	1.6	1.0	0.2	0.2	0.1	0.0
1975	2.0	1.1	0.2	0.3	0.1	0.0
1977	2.1	1.1	0.2	0.4	0.1	0.0
1979	2.8	1.6	0.2	0.5	0.1	0.0
1981	2.3	1.5	0.2	0.3	0.1	0.0
1983	3.7	2.0	0.4	0.7	0.2	0.0
1985	4.4	2.3	0.4	0.9	0.2	0.1
1987	4.1	2.5	0.3	0.7	0.2	0.0
1989	4.2	2.3	0.6	0.8	0.2	0.1
1991	4.4	2.6	0.4	0.5	0.2	0.1
1993	3.9	2.0	0.2	0.6	0.1	0.1
1995	3.5	1.4	0.4	0.9	0.0	0.0
1997	5.6	2.3	0.5	1.3	0.1	0.1
1999	4.9	1.7	0.3	1.2	0.3	0.1

See explanatory notes, if any, and SOURCE, at end of table.

Appendix table 5-25.

Doctoral academic scientists and engineers, by type of position and Carnegie classification and administrative control of institution: 1973–99

(Thousands)

Year	All academic institutions	Research universities	Doctorate-granting	Comprehensive	Medical schools	Liberal arts colleges
Private universities and colleges						
All positions						
1973	34.7	16.4	3.8	5.1	0.9	7.8
1975	40.0	18.6	4.5	5.9	1.2	9.1
1977	42.2	19.6	5.0	6.2	1.3	9.3
1979	45.0	20.6	5.4	7.0	1.5	9.8
1981	51.0	24.4	5.5	8.2	1.8	10.4
1983	50.3	23.2	5.8	8.0	1.8	10.6
1985	58.3	27.5	6.2	9.4	2.3	11.8
1987	60.2	27.9	6.9	9.2	2.9	12.1
1989	65.1	30.8	7.1	10.1	3.1	12.6
1991	67.0	30.8	7.5	11.1	2.8	13.2
1993	67.1	31.1	7.3	10.6	3.4	13.4
1995	68.7	32.0	7.3	11.2	3.4	13.4
1997	68.8	30.7	7.4	11.0	3.5	14.3
1999	74.8	33.6	7.9	12.1	3.7	15.8
Full-time senior faculty						
1973	21.0	9.3	2.4	3.5	0.4	5.0
1975	23.6	10.1	2.8	4.1	0.5	5.6
1977	24.3	10.3	3.1	4.3	0.6	5.6
1979	26.2	10.7	3.4	4.8	0.7	6.1
1981	29.8	12.4	3.7	5.5	0.9	6.9
1983	30.2	11.9	4.1	5.8	0.9	7.1
1985	34.0	13.7	4.4	6.5	1.0	7.8
1987	36.4	14.2	4.8	7.0	1.3	8.5
1989	38.3	14.9	4.8	7.4	1.4	9.0
1991	39.1	14.8	4.9	8.0	1.3	9.2
1993	37.2	14.1	4.6	7.5	1.5	8.9
1995	37.3	14.1	4.4	7.7	1.5	9.1
1997	36.6	13.3	4.5	7.4	1.2	9.1
1999	41.3	15.5	4.9	8.0	1.6	10.4
full-time junior faculty						
1973	8.7	3.7	1.1	1.2	0.4	2.1
1975	9.8	4.1	1.3	1.3	0.4	2.7
1977	10.8	4.2	1.5	1.4	0.5	2.9
1979	10.7	4.3	1.4	1.8	0.6	2.6
1981	11.7	5.6	1.2	2.1	0.5	2.3
1983	10.6	4.8	1.2	1.5	0.5	2.4
1985	12.6	5.8	1.1	1.9	0.8	2.8
1987	12.0	5.3	1.3	1.8	1.0	2.5
1989	13.2	6.1	1.3	1.9	1.1	2.6
1991	14.1	6.5	1.6	2.2	1.0	2.4
1993	15.5	6.9	1.7	2.2	1.1	3.2
1995	15.1	6.5	1.7	2.2	1.0	3.4
1997	15.7	6.3	1.4	2.6	1.2	3.8
1999	16.1	6.1	1.7	2.9	1.1	3.9
Full-time nonfaculty except postdoctorates						
1973	2.3	1.6	0.1	0.2	0.1	0.3
1975	2.9	1.8	0.2	0.3	0.1	0.5
1977	2.9	1.9	0.2	0.2	0.1	0.4
1979	3.4	2.4	0.2	0.2	0.0	0.6
1981	4.3	2.7	0.2	0.2	0.1	0.7
1983	4.2	2.7	0.2	0.3	0.1	0.6
1985	5.9	3.8	0.3	0.7	0.2	0.7
1987	6.1	4.3	0.5	0.2	0.3	0.6
1989	6.6	4.7	0.4	0.5	0.2	0.6
1991	6.6	4.5	0.6	0.2	0.2	0.9
1993	7.7	5.2	0.7	0.5	0.3	0.8
1995	7.8	5.5	0.6	0.5	0.4	0.6
1997	6.6	4.4	0.5	0.5	0.3	0.6
1999	7.4	4.9	0.6	0.6	0.4	0.7

See explanatory notes, if any, and SOURCE, at end of table.

Appendix table 5-25.

Doctoral academic scientists and engineers, by type of position and Carnegie classification and administrative control of institution: 1973–99

(Thousands)

Year	All academic institutions	Research universities	Doctorate-granting	Comprehensive	Medical schools	Liberal arts colleges
Postdoctorates						
1973	1.6	1.4	0.1	0.0	0.0	0.0
1975	2.5	2.1	0.1	0.0	0.2	0.0
1977	3.2	2.8	0.1	0.0	0.2	0.1
1979	3.2	2.7	0.2	0.1	0.2	0.1
1981	3.7	3.1	0.3	0.0	0.3	0.0
1983	3.3	2.9	0.1	0.0	0.2	0.0
1985	3.8	3.4	0.1	0.0	0.2	0.1
1987	4.0	3.6	0.1	0.0	0.3	0.0
1989	5.0	4.4	0.2	0.0	0.3	0.1
1991	4.5	4.0	0.1	0.0	0.3	0.0
1993	4.9	4.3	0.1	0.0	0.4	0.0
1995	6.6	5.5	0.3	0.1	0.5	0.1
1997	7.4	5.9	0.5	0.1	0.7	0.1
1999	7.1	6.2	0.2	0.1	0.5	0.2
Part-time positions						
1973	1.1	0.5	0.1	0.2	0.0	0.2
1975	1.2	0.4	0.2	0.2	0.0	0.3
1977	1.1	0.4	0.2	0.2	0.0	0.2
1979	1.5	0.5	0.2	0.2	0.1	0.4
1981	1.6	0.6	0.2	0.3	0.0	0.4
1983	2.0	0.9	0.2	0.3	0.1	0.5
1985	1.9	0.8	0.2	0.2	0.1	0.4
1987	1.6	0.5	0.3	0.2	0.1	0.4
1989	1.9	0.8	0.3	0.4	0.0	0.4
1991	2.8	1.0	0.3	0.7	0.1	0.6
1993	1.8	0.6	0.3	0.4	0.1	0.4
1995	1.8	0.4	0.3	0.7	0.1	0.2
1997	2.6	0.9	0.5	0.5	0.1	0.6
1999	2.8	0.9	0.4	0.6	0.1	0.5

NOTES: Employment at institutions without a Carnegie code or with unknown administrative control is included only in total. Free-standing schools of engineering and technology are shown with comprehensive institutions. Institutions are designated by the 1994 Carnegie classification code. See Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education* (Princeton, NJ, Princeton University Press, 1994). Junior faculty includes assistant professors and instructors; senior faculty includes full and associate professors. Data excludes those with foreign-earned doctorates.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients, unpublished tabulations.

Appendix table 5-26.

Academic employment of doctoral scientists and engineers, by type of position and field of degree: 1973-99

(Thousands)

Field of degree	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
All positions														
Total S&E	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2
Total sciences	105.6	120.7	130.7	139.5	151.0	158.1	170.4	174.8	183.9	187.8	190.6	193.7	205.9	214.7
Physical sciences	22.1	23.6	25.0	24.6	25.4	25.1	27.0	27.2	27.7	27.7	28.6	29.3	30.2	30.9
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2
Computer sciences	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7
Environmental sciences	3.4	3.9	4.2	4.2	4.6	4.8	5.2	5.6	5.9	6.0	6.4	6.4	7.3	7.8
Life sciences	34.9	39.4	42.6	47.0	51.3	54.9	58.7	61.3	64.8	66.9	68.2	71.6	77.3	81.9
Psychology	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0
Social sciences	23.4	28.0	31.1	33.6	36.9	38.9	42.0	42.2	44.5	44.8	44.4	42.5	44.9	46.2
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.9	22.8	23.1	23.8	26.6	25.5
Total full-time faculty														
Total S&E	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0
Total sciences	92.0	104.2	112.2	116.9	127.3	132.0	139.0	145.2	149.6	153.1	152.3	151.3	156.8	163.0
Physical sciences	17.8	18.9	20.0	20.0	20.5	20.2	21.2	22.0	21.5	21.7	21.3	20.9	21.4	21.7
Mathematics	9.3	10.4	10.9	11.4	11.7	12.3	12.7	12.9	13.5	14.2	14.7	13.0	13.6	13.1
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.8	2.3	2.8	3.0	3.3
Environmental sciences	3.0	3.4	3.6	3.5	3.8	4.0	4.2	4.4	4.7	4.5	4.5	4.7	5.1	5.6
Life sciences	29.5	33.1	34.9	37.3	40.9	43.5	45.6	48.1	49.3	51.1	50.8	52.8	55.2	58.1
Psychology	10.8	12.8	13.9	14.3	16.4	17.3	18.5	19.2	20.2	20.7	19.5	20.1	20.8	21.9
Social sciences	21.6	25.5	28.8	30.4	33.7	34.4	36.1	37.7	39.0	39.0	39.2	37.1	37.7	39.2
Engineering	11.3	12.2	13.5	14.3	14.7	16.4	17.9	19.3	20.2	20.1	20.1	20.0	21.5	21.1
Full-time professors														
Total S&E	42.6	47.9	51.0	57.5	64.4	69.9	72.8	79.1	83.1	82.5	80.0	77.7	80.9	83.1
Total sciences	37.8	42.4	44.7	50.1	56.4	60.9	63.7	68.7	72.5	72.6	69.7	68.6	70.2	72.4
Physical sciences	7.7	8.6	9.2	10.0	11.2	11.9	12.6	13.5	13.2	12.8	12.1	11.6	11.4	11.6
Mathematics	3.2	3.5	3.9	4.4	5.0	5.6	6.1	6.5	6.9	6.7	7.1	6.6	6.9	6.6
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.7
Environmental sciences	1.3	1.4	1.6	1.7	1.9	2.0	2.0	2.0	2.3	2.0	2.1	2.3	2.4	2.6
Life sciences	12.3	13.6	13.9	15.5	17.0	19.3	19.6	21.7	22.5	22.9	21.2	22.5	22.5	23.3
Psychology	3.9	4.6	4.8	5.6	6.5	7.0	7.6	8.3	9.1	9.5	8.7	8.7	9.5	9.4
Social sciences	9.4	10.6	11.3	12.9	14.7	15.1	15.9	16.8	18.5	18.6	18.4	16.6	17.1	18.2
Engineering	4.7	5.6	6.4	7.4	8.0	9.0	9.2	10.4	10.6	9.9	10.3	9.1	10.7	10.6
Full-time associate professors														
Total S&E	31.4	36.3	39.7	39.7	42.9	45.7	46.9	48.2	47.9	50.5	48.6	49.6	51.0	53.6
Total sciences	27.4	32.2	35.3	35.5	38.5	40.9	42.2	43.3	42.6	44.7	43.3	43.5	45.2	47.6
Physical sciences	5.3	6.0	6.1	6.0	5.6	5.2	5.1	4.9	4.5	4.7	4.8	4.8	5.2	5.1
Mathematics	2.8	3.4	3.7	3.9	4.0	4.1	4.0	4.1	4.0	5.1	4.4	4.0	3.9	4.1
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.8	0.7	1.4	1.4	1.4
Environmental sciences	0.9	1.1	1.1	1.1	1.0	1.1	1.2	1.2	1.3	1.6	1.6	1.3	1.3	1.5
Life sciences	8.6	9.8	10.7	11.5	12.5	13.4	14.1	14.1	14.0	14.6	14.6	14.7	15.8	17.3
Psychology	3.3	4.1	4.3	4.3	5.2	5.9	5.9	6.0	5.9	5.9	5.6	5.8	5.8	6.2
Social sciences	6.5	7.9	9.4	8.8	10.2	11.2	11.8	12.7	12.6	12.0	11.6	11.5	11.7	11.9
Engineering	4.0	4.2	4.4	4.2	4.4	4.7	4.7	4.9	5.3	5.9	5.3	6.2	5.8	6.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-26.

Academic employment of doctoral scientists and engineers, by type of position and field of degree: 1973–99

(Thousands)

Field of degree	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Full-time junior faculty														
Total S&E	29.3	32.1	34.9	34.0	34.6	32.8	37.2	37.2	38.7	40.1	43.8	44.0	46.4	47.4
Total sciences	26.7	29.6	32.2	31.3	32.3	30.2	33.1	33.2	34.4	35.8	39.3	39.3	41.5	42.9
Physical sciences	4.8	4.3	4.8	4.0	3.7	3.1	3.5	3.6	3.7	4.1	4.3	4.5	4.8	5.1
Mathematics	3.3	3.5	3.3	3.1	2.6	2.5	2.7	2.4	2.6	2.4	3.2	2.4	2.8	2.4
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.6	0.6	0.9	1.0	1.4	1.2	1.3	1.2
Environmental sciences	0.8	0.9	0.9	0.7	0.9	0.9	1.1	1.1	1.1	0.9	0.9	1.1	1.3	1.5
Life sciences	8.5	9.7	10.3	10.3	11.3	10.8	11.9	12.3	12.8	13.7	15.0	15.6	16.9	17.5
Psychology	3.6	4.2	4.8	4.4	4.8	4.5	5.0	4.9	5.2	5.4	5.2	5.5	5.5	6.2
Social sciences	5.7	7.1	8.2	8.6	8.8	8.1	8.4	8.2	7.9	8.4	9.3	9.0	8.9	9.1
Engineering	2.6	2.5	2.7	2.8	2.3	2.7	4.0	4.0	4.3	4.3	4.5	4.8	5.0	4.5
All other full-time positions														
Total S&E	7.6	8.3	8.8	11.4	12.6	13.4	18.1	16.4	19.2	20.2	22.2	23.9	26.4	29.3
Total sciences	6.8	7.4	8.0	10.5	11.5	12.3	16.6	15.3	17.7	18.4	20.7	21.7	23.3	26.4
Physical sciences	1.9	1.9	2.1	2.0	2.4	2.5	3.0	2.6	3.3	3.2	3.7	3.8	4.6	5.6
Mathematics	0.2	0.3	0.4	0.4	0.4	0.3	0.5	0.4	0.5	0.6	0.5	0.6	0.8	0.8
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3
Environmental sciences	0.3	0.3	0.3	0.5	0.5	0.5	0.7	0.8	0.7	0.9	1.1	1.1	1.4	1.4
Life sciences	2.5	2.4	2.8	3.9	4.0	4.6	6.2	6.0	6.7	7.2	7.7	8.4	8.4	9.5
Psychology	0.8	1.0	1.2	1.8	2.2	2.2	2.9	2.8	2.9	2.8	3.9	3.9	4	4.6
Social sciences	1.0	1.5	1.2	1.9	2.0	2.2	3.2	2.6	3.5	3.5	3.7	3.6	3.9	4.3
Engineering	0.8	0.9	0.8	0.9	1.1	1.1	1.5	1.1	1.5	1.8	1.5	2.1	3.1	3.0
Postdoctoral positions														
Total S&E	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5
Total sciences	4.0	5.9	7.2	7.8	8.4	8.0	8.5	8.8	10.9	9.4	12.3	15.6	17.2	17.5
Physical sciences	1.7	2.1	2.2	1.9	1.9	1.4	1.9	2.0	2.4	1.9	3.0	3.9	3.2	2.9
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Environmental sciences	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.6	0.5
Life sciences	1.9	3.0	4.0	4.7	5.2	5.1	5.2	5.6	6.8	6.4	8.2	9.2	10.8	11.7
Psychology	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.5	0.4	1.1	1.3	1.2
Social sciences	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.3	0.1	0.4	0.3	0.2	0.4	0.7
Engineering	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1
Part-time positions														
Total S&E	2.9	3.2	3.4	4.5	4.0	6.0	6.5	5.7	6.2	7.4	5.9	5.5	8.9	8.2
Total sciences	2.8	3.1	3.2	4.3	3.9	5.7	6.2	5.4	5.6	6.9	5.4	5.1	8.6	7.9
Physical sciences	0.6	0.6	0.6	0.7	0.6	1.0	0.9	0.6	0.5	0.9	0.7	0.7	1.0	0.7
Mathematics	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.7	0.7
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Environmental sciences	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3
Life sciences	0.9	0.9	1.0	1.2	1.2	1.7	1.7	1.6	1.9	2.3	1.6	1.2	2.9	2.6
Psychology	0.4	0.5	0.6	1.0	0.8	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1	1.3
Social sciences	0.7	0.8	0.8	1.0	1.0	1.6	2.2	1.8	1.7	2.0	1.3	1.3	2.6	2.2
Engineering	0.1	0.1	0.1	0.3	0.2	0.4	0.3	0.3	0.5	0.5	0.5	0.4	0.3	0.4

NA = not available

NOTES: Data exclude scientists and engineers with doctorates from foreign institutions. Faculty is defined by position: senior faculty includes full and associate professors; junior faculty members are assistant professors or instructors. Details may not add to totals because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Studies (NSF/SRS), *Characteristics of Doctoral Scientists and Engineers in the United States: 1999, Detailed Statistics Tables* (forthcoming).

See figure 5-20 in Volume 1.

Appendix table 5-27.

Recent S&E Ph.D.s employed in academia by years since doctorate, type institution, appointment, and tenure status: 1973-99
 (Percent)

Year	Total	Type of appointment			Tenure status				
		Full-time faculty	Post-doctorates	Other positions	Total	Tenured	Untenured	Not on tenure track	
One to three years since doctorate									
Universities and colleges, total									
1973	100.0	73.6	12.8	13.6	NA	NA	NA	NA	
1975	100.0	70.1	18.4	11.1	NA	NA	NA	NA	
1977	100.0	64.9	23.1	12.4	NA	NA	NA	NA	
1979	100.0	59.3	24.9	15.8	45.1	7.4	37.7	54.9	
1981	100.0	57.0	28.5	14.5	45.0	5.2	39.8	55.0	
1983	100.0	56.6	27.8	15.6	66.2	8.4	57.8	33.8	
1985	100.0	54.6	27.5	17.9	49.0	4.2	44.8	51.0	
1987	100.0	51.7	29.9	18.5	48.6	3.8	44.8	51.4	
1989	100.0	47.6	33.5	18.9	44.1	3.7	40.4	55.9	
1991	100.0	54.9	27.5	17.6	65.2	4.6	60.6	34.8	
1993	100.0	47.8	33.5	19.1	36.3	1.9	34.4	63.7	
1995	100.0	41.3	39.8	19.0	31.2	2.6	28.6	68.8	
1997	100.0	40.7	41.4	17.9	32.0	2.6	29.5	68.0	
1999	100.0	37.3	43.1	19.6	28.8	2.0	26.8	71.2	
Research universities									
1973	100.0	60.3	21.4	17.5	NA	NA	NA	NA	
1975	100.0	56.3	28.6	14.3	NA	NA	NA	NA	
1977	100.0	50.4	35.8	13.8	NA	NA	NA	NA	
1979	100.0	48.0	35.8	16.3	34.8	1.6	33.2	65.2	
1981	100.0	45.7	38.8	15.5	36.3	1.1	35.2	63.7	
1983	100.0	43.0	40.5	16.5	56.9	2.6	54.3	43.1	
1985	100.0	43.8	37.2	19.0	39.6	0.6	39.1	60.4	
1987	100.0	40.4	40.4	19.9	39.2	1.3	37.9	60.8	
1989	100.0	36.7	44.0	19.3	36.0	1.2	34.8	64.0	
1991	100.0	41.8	38.6	19.6	57.3	2.4	55.0	42.7	
1993	100.0	33.1	46.1	20.1	23.7	0.7	23.0	76.3	
1995	100.0	26.7	54.7	18.6	19.6	0.4	19.2	80.4	
1997	100.0	26.7	56.5	16.8	19.5	0.6	18.9	80.5	
1999	100.0	24.1	58.2	17.7	18.9	0.7	18.2	81.1	
Other types of academic institutions									
1973	100.0	90.7	2.8	6.5	NA	NA	NA	NA	
1975	100.0	87.5	5.2	6.3	NA	NA	NA	NA	
1977	100.0	83.9	8.0	8.0	NA	NA	NA	NA	
1979	100.0	77.0	9.5	13.5	59.5	15.6	43.9	40.5	
1981	100.0	77.9	11.8	10.3	59.4	12.1	47.4	40.6	
1983	100.0	80.3	9.1	10.6	76.9	15.1	61.8	23.1	
1985	100.0	74.6	11.3	14.1	63.5	9.9	53.6	36.5	
1987	100.0	73.1	10.4	16.4	64.4	8.1	56.4	35.6	
1989	100.0	68.8	14.3	16.9	56.9	7.5	49.4	43.1	
1991	100.0	76.1	10.9	13.0	73.0	6.7	66.2	27.0	
1993	100.0	71.3	12.6	16.1	56.1	3.8	52.3	43.9	
1995	100.0	66.7	17.2	17.2	48.6	5.9	42.7	51.4	
1997	100.0	66.7	17.7	15.6	47.6	4.9	42.6	52.4	
1999	100.0	64.0	19.8	16.3	42.1	3.7	38.4	57.9	

See explanatory notes, if any, and source at end of table.

Appendix table 5-27.

Recent S&E Ph.D.s employed in academia by years since doctorate, type institution, appointment, and tenure status: 1973-99
(Percent)

Year	Total	Type of appointment			Tenure status			
		Full-time faculty	Post-doctorates	Other positions	Total	Tenured	Untenured	
Four to seven years since doctorate								
Universities and colleges, total								
1973	100.0	89.2	2.4	8.4	NA	NA	NA	
1975	100.0	87.1	4.3	8.3	NA	NA	NA	
1977	100.0	85.0	5.3	9.7	NA	NA	NA	
1979	100.0	81.2	6.1	12.9	65.7	26.3	39.4	
1981	100.0	80.8	6.3	13.2	70.3	24.9	45.3	
1983	100.0	76.8	5.7	17.2	65.7	23.8	42.0	
1985	100.0	76.9	6.9	16.4	65.2	19.4	45.8	
1987	100.0	75.0	7.6	17.2	60.4	16.6	43.8	
1989	100.0	73.2	9.1	17.8	59.5	12.6	46.9	
1991	100.0	75.0	7.1	17.6	65.1	21.2	43.9	
1993	100.0	72.1	11.1	16.7	60.4	12.4	48.0	
1995	100.0	70.3	12.9	16.8	59.3	12.4	46.9	
1997	100.0	66.3	14.8	19.0	54.1	11.6	42.5	
1999	100.0	65.4	14.1	20.5	52.4	10.4	42.0	
Research universities								
1973	100.0	86.8	4.0	9.7	NA	NA	NA	
1975	100.0	82.1	7.7	9.8	NA	NA	NA	
1977	100.0	77.8	9.4	13.3	NA	NA	NA	
1979	100.0	74.0	9.8	16.7	60.0	20.2	39.8	
1981	100.0	74.4	8.9	16.8	61.6	16.2	45.4	
1983	100.0	70.5	8.7	21.2	60.2	14.4	45.8	
1985	100.0	69.1	10.9	20.0	58.7	11.9	46.8	
1987	100.0	67.0	11.4	21.9	53.1	12.2	40.9	
1989	100.0	65.1	13.7	20.9	52.3	7.5	44.8	
1991	100.0	65.9	11.6	22.8	56.9	16.2	40.7	
1993	100.0	64.5	17.5	18.6	52.4	6.9	45.5	
1995	100.0	59.9	19.8	19.9	49.0	7.6	41.3	
1997	100.0	55.2	21.3	23.1	43.5	5.9	37.7	
1999	100.0	54.8	21.0	24.3	41.8	5.8	36.0	
Other types of academic institutions								
1973	100.0	91.8	0.7	7.1	NA	NA	NA	
1975	100.0	91.8	1.1	6.8	NA	NA	NA	
1977	100.0	92.1	1.6	6.5	NA	NA	NA	
1979	100.0	89.2	1.9	8.7	71.9	32.9	39.0	
1981	100.0	87.9	3.4	9.3	80.1	34.8	45.3	
1983	100.0	84.4	2.7	13.4	71.3	33.3	38.1	
1985	100.0	86.2	2.2	12.1	73.0	28.5	44.5	
1987	100.0	87.4	2.4	10.9	70.4	22.6	47.7	
1989	100.0	84.6	2.4	13.3	69.7	19.9	49.8	
1991	100.0	86.3	2.2	11.2	75.2	27.4	47.9	
1993	100.0	82.6	3.4	14.6	70.2	19.1	51.1	
1995	100.0	81.6	5.1	13.2	71.2	17.9	53.3	
1997	100.0	77.5	7.7	14.9	64.6	17.3	47.3	
1999	100.0	75.3	7.6	16.9	62.3	14.7	47.7	

NA=not available

NOTES: Recent Ph.D.s are defined as having earned their doctorate within three years or within four to seven years, respectively, preceding the survey year. Full-time faculty includes full, associate, and assistant professors plus instructors. Other types of positions include full-time non-faculty appointments such as postdocs, research associates, adjunct appointments, lecturers, administrative positions, and part-time appointments of all kinds. Details may not add to totals because of rounding and omission of respondents with unreported work responsibility or unknown tenure status. Foreign doctorates are excluded. Institutions are designated by the 1994 Carnegie classification code. (See Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education*, 1994 ed., Princeton: Princeton University Press, 1994).

SOURCE: National Science Foundation, Survey of Doctorate Recipients.

Appendix table 5-28.

Age distribution of academic doctoral scientists and engineers, by type of appointment: 1973–99

(Mean, median, and percent by age group)

Year	Age (years)		Total	Distribution (percent)				
	Mean	Median		Less than 35	35–44	45–54	55–64	65 and more
All doctoral scientists and engineers								
1973	42.0	39.6	100.0	28.3	35.2	23.3	10.9	2.2
1975	42.4	39.9	100.0	25.9	36.8	23.7	11.7	2.0
1977	42.7	40.0	100.0	22.9	38.9	23.8	12.4	2.0
1979	43.3	40.7	100.0	20.1	40.3	23.8	13.6	2.2
1981	44.0	41.5	100.0	18.3	40.5	23.7	14.5	2.9
1983	44.8	42.5	100.0	14.9	40.8	25.2	15.7	3.4
1985	45.2	43.2	100.0	14.2	39.2	26.8	15.9	3.8
1987	45.6	44.2	100.0	12.9	36.5	30.6	16.5	3.5
1989	46.1	45.0	100.0	12.1	34.7	32.2	16.9	4.1
1991	46.3	45.3	100.0	11.5	33.7	34.2	16.9	3.8
1993	45.8	45.0	100.0	13.3	33.3	34.4	16.1	3.0
1995	46.2	45.3	100.0	12.7	32.9	33.6	17.4	3.5
1997	46.6	45.8	100.0	13.3	30.7	32.8	19.6	3.6
1999	45.0	44.7	100.0	18.2	30.8	31.5	17.2	2.3
Full-time faculty								
1973	42.4	40.3	100.0	25.6	36.6	24.6	11.3	2.0
1975	42.8	40.6	100.0	22.9	38.2	25.1	12.0	1.8
1977	43.3	40.9	100.0	19.2	40.1	25.7	13.3	1.7
1979	44.0	41.6	100.0	16.2	41.1	25.9	14.7	2.0
1981	44.7	42.4	100.0	14.7	41.2	25.8	15.7	2.7
1983	45.5	43.4	100.0	11.3	41.2	27.5	17.2	2.8
1985	45.8	43.9	100.0	10.8	39.6	29.0	17.0	3.5
1987	46.6	45.1	100.0	9.2	35.9	33.2	18.1	3.5
1989	47.1	46.0	100.0	8.3	33.8	35.4	18.8	3.8
1991	47.0	46.4	100.0	8.8	32.7	36.8	18.3	3.4
1993	46.9	46.0	100.0	9.3	32.4	36.9	18.0	3.3
1995	47.5	46.9	100.0	8.0	31.9	36.6	19.8	3.8
1997	48.0	47.5	100.0	8.2	29.9	35.6	22.2	4.0
1999	46.5	46.0	100.0	12.2	31.1	34.2	19.8	2.6
Postdoctorates								
1973	32.1	30.3	100.0	81.2	15.2	3.0	0.6	0.0
1975	32.7	31.2	100.0	78.0	18.7	2.0	1.1	0.2
1977	32.9	31.1	100.0	75.3	21.7	2.4	0.6	0.0
1979	33.1	31.6	100.0	71.7	25.5	2.1	0.7	0.0
1981	33.1	31.6	100.0	71.9	24.6	2.6	0.6	0.3
1983	33.7	31.7	100.0	68.4	27.0	3.5	1.0	0.2
1985	33.3	31.9	100.0	70.6	27.2	2.1	0.1	0.0
1987	33.8	32.0	100.0	68.4	28.3	2.4	0.5	0.4
1989	34.6	32.6	100.0	63.9	29.9	4.5	1.0	0.7
1991	34.7	33.1	100.0	57.2	39.0	2.8	1.0	0.0
1993	33.9	32.7	100.0	62.3	34.7	2.5	0.5	0.0
1995	35.0	33.0	100.0	56.6	35.9	5.8	1.6	0.1
1997	35.0	33.0	100.0	60.7	32.3	4.6	2.1	0.3
1999	32.5	31.0	100.0	74.6	22.0	3.1	0.3	0.0
Other appointments								
1973	41.9	38.2	100.0	34.6	30.3	18.7	10.9	5.4
1975	43.3	40.0	100.0	27.5	32.0	21.8	13.4	5.4
1977	42.5	38.3	100.0	28.4	37.4	17.5	10.6	6.1
1979	42.5	38.6	100.0	25.2	41.6	17.0	10.9	5.2
1981	43.3	39.6	100.0	21.8	43.6	17.0	11.1	6.4
1983	44.1	39.9	100.0	19.3	43.6	17.5	10.6	8.9
1985	45.3	42.5	100.0	15.9	41.0	21.6	14.7	6.8
1987	43.9	41.1	100.0	16.9	43.9	23.3	10.9	5.0
1989	44.9	42.2	100.0	14.2	43.3	23.5	11.2	7.8
1991	46.1	44.0	100.0	11.6	38.2	28.7	14.2	7.3
1993	44.6	43.2	100.0	14.2	37.9	33.9	11.3	2.7
1995	44.8	43.5	100.0	15.0	37.0	31.7	12.4	3.8
1997	45.8	44.7	100.0	13.4	33.9	33.5	15.7	3.4
1999	44.0	43.0	100.0	19.4	33.7	32.0	12.9	2.0

NOTES: Faculty positions include full, associate, and assistant professors and instructors. Foreign-earned doctorates are excluded. Details may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients, unpublished tabulations.

See figure 5-23 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 5-29.

**Age distribution of doctoral scientists and engineers in full-time faculty positions at research universities and other academic institutions: 1973–99
(Percentages)**

Age (years)	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
All universities and colleges														
Total number (in thousands)	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0
Less than 30	3.6	2.9	2.3	1.7	1.5	1.1	1.0	0.7	0.5	0.8	1.1	0.7	0.8	2.6
30–34	22.0	20.1	16.9	14.5	13.2	10.2	9.9	8.5	7.8	8.1	8.3	7.3	7.5	9.7
35–39	19.9	21.6	23.7	23.3	20.7	18.6	18.2	15.9	15.1	14.9	15.3	14.9	13.1	14.4
40–44	16.6	16.6	16.4	17.8	20.5	22.6	21.4	20.0	18.6	17.8	17.1	17.0	16.7	16.7
45–49	13.6	13.8	14.3	14.1	13.8	15.1	17.0	20.1	20.8	19.4	18.4	17.9	17.2	16.8
50–54	11.0	11.3	11.4	11.8	12.0	12.4	12.0	13.1	14.6	17.4	18.5	18.7	18.5	17.5
55–59	7.0	7.5	8.4	9.3	9.4	10.3	9.7	10.5	11.1	11.0	10.6	12.4	14.5	13.6
60–64	4.3	4.6	4.8	5.4	6.3	7.0	7.3	7.6	7.7	7.2	7.5	7.4	7.7	6.2
65 or more	2.0	1.8	1.7	2.0	2.7	2.8	3.5	3.5	3.8	3.4	3.3	3.8	4.0	2.6
Research universities^a														
Total number (in thousands)	55.7	61.5	64.7	67.1	73.8	72.2	80.6	84.2	86.6	85.8	84.4	81.6	81.5	84.2
Less than 30	3.4	3.0	2.5	2.2	2.1	1.4	1.2	1.0	0.6	0.8	1.2	0.9	0.9	2.4
30–34	20.6	18.8	16.4	14.9	14.1	11.2	11.4	9.8	9.3	9.1	9.4	7.3	7.0	9.6
35–39	19.3	20.3	21.0	21.7	19.8	18.0	17.9	16.6	17.1	16.6	16.6	16.4	14.0	15.0
40–44	16.4	16.3	16.2	17.2	18.8	20.2	20.0	18.7	17.2	17.5	17.6	18.4	17.6	17.7
45–49	14.3	14.2	14.7	13.9	12.6	14.9	15.4	17.8	18.4	17.8	16.9	16.9	17.3	15.8
50–54	11.4	12.2	12.3	12.1	12.1	12.1	12.0	12.9	13.8	15.6	16.0	16.5	17.3	16.8
55–59	7.7	8.3	9.3	10.0	10.4	10.8	9.8	10.3	10.9	10.7	11.0	11.8	13.5	12.8
60–64	4.8	5.0	5.4	5.8	6.8	8.0	8.2	8.5	8.0	7.7	7.8	7.5	7.8	6.5
65 or more	2.1	1.9	2.2	2.3	3.2	3.5	4.1	4.3	4.8	4.2	3.7	4.2	4.7	3.2
Other types of universities and colleges														
Total number (in thousands)	47.6	54.9	61.0	64.1	68.2	76.2	76.2	80.2	83.2	87.3	88.1	89.7	96.8	99.9
Less than 30	3.8	2.8	2.1	1.2	0.9	0.8	0.8	0.4	0.4	0.8	0.9	0.6	0.7	2.7
30–34	23.6	21.4	17.5	14.1	12.2	9.4	8.2	7.1	6.3	7.1	7.3	7.2	7.9	9.7
35–39	20.7	23.0	26.5	25.1	21.6	19.1	18.5	15.2	13.1	13.1	14.1	13.5	12.5	13.9
40–44	16.8	17.0	16.6	18.4	22.3	24.9	22.8	21.3	20.1	18.1	16.7	15.7	16.0	15.9
45–49	12.8	13.3	13.9	14.3	15.0	15.2	18.8	22.5	23.4	20.9	19.9	18.8	17.1	17.5
50–54	10.5	10.3	10.4	11.6	11.8	12.7	12.0	13.4	15.4	19.2	20.8	20.6	19.5	18.0
55–59	6.3	6.5	7.5	8.5	8.4	9.8	9.6	10.8	11.2	11.3	10.2	12.9	15.4	14.2
60–64	3.6	4.2	4.2	5.1	5.8	5.9	6.3	6.6	7.4	6.8	7.1	7.2	7.5	6.0
65 or more	1.8	1.6	1.2	1.7	2.0	2.2	2.9	2.6	2.7	2.7	3.0	3.3	3.5	2.2

^aResearch universities are designated by Carnegie classification code (see Carnegie Foundation for the Advancement of Teaching, *A Classification of Institutions of Higher Education*, Princeton, NJ: Princeton University Press, 1994).

NOTE: Faculty positions include full, associate, and assistant professors and instructors. Foreign-earned doctorates are excluded.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients, unpublished tabulations (Arlington, VA, 1999).

See figure 5-23 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 5-30.

Doctoral scientists and engineers employed in academia, by degree field, sex, and type of position: 1973–99
 (Thousands)

Field of degree and sex	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Total academic employment														
All, total S&E	118.0	134.1	145.5	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2
Total sciences	105.6	120.7	130.7	139.5	151.0	158.1	170.4	174.8	183.9	187.8	190.6	193.7	205.9	214.7
Physical sciences	22.1	23.6	25.0	24.6	25.4	25.1	27.0	27.2	27.7	27.7	28.6	29.3	30.2	30.9
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2
Computer sciences	NA	NA	NA	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7
Environmental sciences	3.4	3.9	4.2	4.2	4.6	4.8	5.2	5.6	5.9	6.0	6.4	6.4	7.3	7.8
Life sciences	34.9	39.4	42.6	47.0	51.3	54.9	58.7	61.3	64.8	66.9	68.2	71.6	77.3	81.9
Psychology	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0
Social sciences	23.4	28.0	31.1	33.6	36.9	38.9	42.0	42.2	44.5	44.8	44.4	42.5	44.9	46.2
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.9	22.8	23.1	23.8	26.6	25.5
Male, total S&E	107.3	120.3	129.0	136.0	144.0	149.8	159.2	162.0	168.0	168.7	166.9	165.1	173.3	175.8
Total sciences	94.9	106.9	114.3	120.3	128.1	132.0	139.7	141.4	145.8	146.9	144.8	142.9	148.4	152.4
Physical sciences	20.7	22.1	23.3	22.9	23.5	23.2	24.9	24.9	25.2	25.4	25.7	25.9	26.2	27.0
Mathematics	9.0	10.3	10.8	11.3	11.3	11.8	12.3	12.5	13.0	13.9	13.7	12.8	13.5	12.9
Computer sciences	NA	NA	NA	0.1	0.3	0.4	0.7	0.9	1.3	1.6	2.1	2.5	2.6	2.9
Environmental sciences	3.3	3.8	4.1	4.0	4.3	4.5	4.9	5.1	5.3	5.4	5.7	5.5	6.2	6.4
Life sciences	30.8	34.3	36.6	40.1	42.9	44.5	46.7	47.9	49.5	50.1	49.4	50.1	52.6	55.1
Psychology	10.0	11.8	12.6	13.5	14.9	15.1	16.0	16.2	16.5	16.0	14.7	14.7	15.4	15.6
Social sciences	21.0	24.7	26.9	28.5	30.9	32.3	34.3	33.9	35.1	34.6	33.4	31.3	31.9	32.4
Engineering	12.3	13.3	14.7	15.7	15.9	17.8	19.5	20.6	22.2	21.8	22.1	22.3	24.8	23.4
Female, total S&E	10.7	13.8	16.5	19.4	23.1	26.5	31.1	34.0	38.7	41.9	46.9	52.4	59.2	64.4
Total sciences	10.7	13.8	16.4	19.2	22.9	26.1	30.7	33.5	38.0	40.9	45.8	50.9	57.5	62.3
Physical sciences	1.4	1.5	1.6	1.7	1.9	1.9	2.1	2.3	2.5	2.3	2.9	3.5	4.0	3.9
Mathematics	0.6	0.8	0.9	0.9	1.1	1.1	1.3	1.4	1.5	1.4	1.7	1.8	2.1	2.2
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.2	0.4	0.5	0.6	0.7	0.8	
Environmental sciences	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.9	1.1	1.4
Life sciences	4.0	5.1	6.0	6.9	8.4	10.3	12.1	13.3	15.3	16.8	18.8	21.5	24.7	26.7
Psychology	2.2	3.0	3.6	4.3	5.2	5.9	7.1	7.6	8.5	9.2	10.3	11.5	11.9	13.4
Social sciences	2.4	3.3	4.2	5.2	6.0	6.5	7.7	8.3	9.4	10.2	10.9	11.2	13.0	13.8
Engineering	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.6	0.7	1.0	1.1	1.5	1.7	2.1
Full-time senior faculty														
All, total S&E	74.0	84.3	90.7	97.2	107.3	115.6	119.7	127.3	131.0	133.0	128.6	127.3	131.9	136.7
Total sciences	65.3	74.5	80.0	85.6	94.9	101.8	105.8	112.0	115.2	117.2	113.0	112.1	115.4	120.1
Physical sciences	13.0	14.6	15.3	16.0	16.8	17.1	17.7	18.3	17.8	17.6	16.9	16.4	16.7	16.6
Mathematics	5.9	6.9	7.6	8.3	9.1	9.7	10.0	10.5	10.9	11.8	11.5	10.6	10.8	
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.3	0.4	0.9	0.9	1.7	1.7	2.1
Environmental sciences	2.2	2.5	2.7	2.8	2.9	3.1	3.1	3.2	3.6	3.6	3.7	3.6	3.8	4.1
Life sciences	21.0	23.4	24.6	27.0	29.6	32.6	33.7	35.8	36.4	37.4	35.8	37.2	38.3	40.6
Psychology	7.3	8.7	9.1	9.9	11.7	12.8	13.5	14.3	15.0	15.3	14.3	14.5	15.3	15.6
Social sciences	15.9	18.5	20.7	21.7	24.9	26.3	27.7	29.5	31.1	30.6	29.9	28.1	28.8	30.1
Engineering	8.7	9.7	10.7	11.6	12.4	13.7	13.9	15.3	15.9	15.8	15.7	15.3	16.6	16.6
Male, total S&E	69.7	78.9	84.7	90.2	98.7	104.9	107.4	113.2	115.2	115.5	110.3	107.0	109.4	110.6
Total sciences	61.0	69.2	74.0	78.7	86.4	91.3	93.7	98.2	99.6	100.1	95.0	92.2	93.3	94.8
Physical sciences	12.5	14.1	14.7	15.4	16.2	16.4	17.0	17.5	16.9	16.9	16.0	15.4	15.6	15.4
Mathematics	5.6	6.5	7.2	7.9	8.6	9.1	9.3	9.8	10.0	10.8	10.5	9.8	10.0	9.7
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.3	0.4	0.8	0.8	1.4	1.3	1.6
Environmental sciences	2.2	2.5	2.7	2.7	2.8	3.0	3.0	3.1	3.4	3.4	3.5	3.4	3.3	3.6
Life sciences	19.5	21.6	22.7	24.8	26.9	29.1	29.4	31.0	31.0	31.4	29.3	29.3	30.0	31.1
Psychology	6.4	7.6	7.8	8.4	9.7	10.5	10.8	11.2	11.5	11.3	10.2	10.1	10.7	10.3

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-30.

Doctoral scientists and engineers employed in academia, by degree field, sex, and type of position: 1973–99
(Thousands)

Field of degree and sex	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Social sciences	14.7	16.9	18.8	19.5	22.3	23.2	24.1	25.3	26.4	25.5	24.7	22.8	22.4	23.2
Engineering	8.7	9.7	10.7	11.5	12.2	13.6	13.7	15.1	15.7	15.4	15.3	14.8	16.1	15.8
Female, total S&E	4.3	5.4	6.0	7.0	8.6	10.7	12.4	14.0	15.8	17.6	18.3	20.3	22.5	26.1
Total sciences	4.3	5.4	6.0	6.9	8.5	10.5	12.2	13.8	15.6	17.1	18.0	19.8	22.0	25.3
Physical sciences	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.9	0.9	0.7	0.9	1.0	1.1	1.3
Mathematics	0.3	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.0	0.8	0.8	1.1
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.5
Environmental sciences	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.6
Life sciences	1.5	1.8	1.9	2.2	2.7	3.5	4.3	4.8	5.4	6.1	6.5	7.8	8.3	9.5
Psychology	0.8	1.1	1.2	1.4	2.0	2.4	2.7	3.1	3.5	4.0	4.1	4.4	4.6	5.4
Social sciences	1.1	1.5	1.8	2.2	2.6	3.1	3.6	4.1	4.7	5.1	5.2	5.3	6.4	7.0
Engineering	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.5	0.5	0.8
Full-time junior faculty														
All, total S&E	29.3	32.1	34.9	34.0	34.6	32.8	37.2	37.2	38.7	40.1	43.8	44.0	46.4	47.4
Total sciences	26.7	29.6	32.2	31.3	32.3	30.2	33.1	33.2	34.4	35.8	39.3	39.3	41.5	42.9
Physical sciences	4.8	4.3	4.8	4.0	3.7	3.1	3.5	3.6	3.7	4.1	4.3	4.5	4.8	5.1
Mathematics	3.3	3.5	3.3	3.1	2.6	2.5	2.7	2.4	2.6	2.4	3.2	2.4	2.8	2.4
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.6	0.6	0.9	1.0	1.4	1.2	1.3	1.2
Environmental sciences	0.8	0.9	0.9	0.7	0.9	0.9	1.1	1.1	1.1	0.9	0.9	1.1	1.3	1.5
Life sciences	8.5	9.7	10.3	10.3	11.3	10.8	11.9	12.3	12.8	13.7	15.0	15.6	16.9	17.5
Psychology	3.6	4.2	4.8	4.4	4.8	4.5	5.0	4.9	5.2	5.4	5.2	5.5	5.5	6.2
Social sciences	5.7	7.1	8.2	8.6	8.8	8.1	8.4	8.2	7.9	8.4	9.3	9.0	8.9	9.1
Engineering	2.6	2.5	2.7	2.8	2.3	2.7	4.0	4.0	4.3	4.3	4.5	4.8	5.0	4.5
Male, total S&E	26.0	27.5	28.9	27.3	27.1	25.2	27.8	27.2	27.6	28.1	29.7	28.5	29.5	30.1
Total sciences	23.5	25.1	26.3	24.6	24.9	22.6	23.9	23.4	23.5	24.2	25.7	24.4	25.1	26.2
Physical sciences	4.5	4.0	4.4	3.6	3.2	2.7	3.0	3.2	3.2	3.4	3.5	3.4	3.5	4.0
Mathematics	3.1	3.2	2.9	2.7	2.2	2.2	2.3	2.0	2.2	2.2	2.7	2.0	2.2	1.7
Computer sciences	NA	NA	NA	0.1	0.2	0.3	0.5	0.5	0.8	0.8	1.1	1.0	1.0	0.9
Environmental sciences	0.7	0.9	0.8	0.7	0.9	0.8	0.9	0.9	0.9	0.7	0.7	0.7	1.0	1.1
Life sciences	7.5	8.1	8.4	8.1	8.9	8.1	8.5	8.5	8.4	8.8	9.5	9.5	9.8	10.4
Psychology	2.7	3.0	3.3	2.8	3.0	2.6	2.7	2.7	2.9	3.0	2.3	2.4	2.1	2.7
Social sciences	5.0	5.9	6.5	6.6	6.5	5.9	6.0	5.6	5.2	5.3	5.9	5.5	5.5	5.4
Engineering	2.6	2.4	2.7	2.7	2.2	2.6	3.8	3.8	4.0	3.9	4.0	4.1	4.4	3.9
Female, total S&E	3.3	4.6	6.0	6.8	7.5	7.7	9.4	10.0	11.2	12.0	14.1	15.6	17.0	17.3
Total sciences	3.3	4.6	5.9	6.7	7.4	7.6	9.2	9.7	10.8	11.6	13.6	14.9	16.4	16.7
Physical sciences	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.7	0.9	1.1	1.3	1.1
Mathematics	0.2	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.5	0.5	0.6	0.7
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2
Environmental sciences	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.4
Life sciences	1.1	1.6	1.9	2.2	2.4	2.7	3.4	3.8	4.5	4.9	5.5	6.1	7.1	7.1
Psychology	0.9	1.2	1.5	1.6	1.8	1.9	2.3	2.2	2.3	2.4	2.9	3.1	3.4	3.5
Social sciences	0.8	1.2	1.7	2.1	2.3	2.1	2.4	2.6	2.7	3.0	3.4	3.5	3.5	3.7
Engineering	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.7	0.6	0.5	0.5
All other full-time positions														
All, total S&E	7.6	8.3	8.8	11.4	12.6	13.4	18.1	16.4	19.2	20.2	22.2	23.9	26.4	29.3
Total sciences	6.7	7.4	8.0	10.5	11.5	12.4	16.6	15.3	17.7	18.4	20.8	21.6	23.3	26.4
Physical sciences	1.9	1.9	2.1	2.0	2.4	2.5	3.0	2.6	3.3	3.2	3.7	3.8	4.6	5.6
Mathematics	0.2	0.3	0.4	0.4	0.4	0.3	0.5	0.4	0.5	0.7	0.5	0.6	0.8	0.8
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3
Environmental sciences	0.3	0.3	0.3	0.5	0.5	0.5	0.7	0.8	0.7	0.9	1.1	1.1	1.4	1.4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-30.

Doctoral scientists and engineers employed in academia, by degree field, sex, and type of position: 1973–99
(Thousands)

Field of degree and sex	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Life sciences	2.5	2.4	2.8	3.9	4.0	4.6	6.2	6.0	6.7	7.2	7.7	8.4	8.4	9.5
Psychology	0.8	1.0	1.2	1.8	2.2	2.2	2.9	2.8	2.9	2.8	3.9	3.9	4.0	4.6
Social sciences	1.0	1.5	1.2	1.9	2.0	2.2	3.2	2.6	3.5	3.5	3.7	3.6	3.9	4.3
Engineering	0.8	0.9	0.8	0.9	1.1	1.1	1.5	1.1	1.5	1.8	1.5	2.1	3.1	3.0
Male, total S&E	6.5	7.2	7.4	9.4	10.0	10.3	14.3	12.0	13.9	14.4	15.4	16.1	18.0	20.5
Total sciences	5.8	6.4	6.6	8.6	8.9	9.3	12.8	10.9	12.5	12.8	13.9	14.2	15.3	17.9
Physical sciences	1.8	1.8	1.9	1.8	2.1	2.2	2.7	2.2	2.9	2.9	3.3	3.2	4.0	4.9
Mathematics	0.2	0.3	0.4	0.3	0.3	0.2	0.4	0.4	0.4	0.6	0.4	0.5	0.7	0.7
Computer sciences	NA	NA	NA	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2
Environmental sciences	0.3	0.3	0.3	0.5	0.5	0.5	0.7	0.7	0.6	0.7	0.9	0.9	1.2	1.1
Life sciences	2.0	1.9	2.2	3.0	3.0	3.2	4.6	4.1	4.6	4.9	5.1	5.6	5.3	6.2
Psychology	0.7	0.8	0.9	1.4	1.4	1.4	1.8	1.6	1.5	1.2	1.9	1.7	1.8	2.1
Social sciences	0.8	1.3	0.9	1.6	1.6	1.7	2.5	1.8	2.4	2.4	2.2	2.1	2.2	2.6
Engineering	0.8	0.9	0.8	0.9	1.1	1.0	1.5	1.0	1.4	1.7	1.5	2.0	2.7	2.6
Female, total S&E	1.1	1.0	1.4	2.0	2.6	3.1	3.8	4.5	5.3	5.8	6.7	7.7	8.4	8.8
Total sciences	1.1	1.0	1.4	1.9	2.6	3.0	3.8	4.5	5.2	5.6	6.7	7.5	8.2	8.5
Physical sciences	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.6	0.7	0.6
Mathematics	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.1
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Life sciences	0.6	0.5	0.6	0.9	1.0	1.3	1.6	1.8	2.1	2.4	2.6	2.8	3.1	3.3
Psychology	0.2	0.2	0.3	0.5	0.8	0.8	1.1	1.3	1.4	1.6	2.0	2.2	2.2	2.5
Social sciences	0.2	0.2	0.2	0.3	0.4	0.5	0.7	0.8	1.1	1.1	1.5	1.5	1.7	1.7
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.3
Postdoctoral positions														
All, total S&E	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5
Total sciences	4.0	5.9	7.2	7.8	8.4	8.0	8.5	8.8	10.9	9.4	12.3	15.6	17.2	17.5
Physical sciences	1.7	2.1	2.2	1.9	1.9	1.4	1.9	2.0	2.4	1.9	3.0	3.9	3.2	2.9
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Environmental sciences	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.6	0.5
Life sciences	1.9	3.0	4.0	4.7	5.2	5.1	5.2	5.6	6.8	6.4	8.2	9.2	10.8	11.7
Psychology	0.2	0.4	0.5	0.6	0.6	0.6	0.6	0.7	0.8	0.5	0.4	1.1	1.3	1.2
Social sciences	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.7	0.5
Engineering	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1
Male, total S&E	3.5	4.9	6.1	6.3	6.3	5.8	6.0	6.8	8.2	6.8	9.2	11.1	12.1	11.2
Total sciences	3.4	4.7	5.7	6.0	6.1	5.5	5.9	6.3	7.6	6.4	8.3	10.1	10.6	10.3
Physical sciences	1.5	1.9	1.9	1.7	1.6	1.2	1.6	1.7	2.0	1.5	2.5	3.3	2.5	2.3
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.3	0.3	0.5
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Environmental sciences	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.4
Life sciences	1.5	2.2	2.9	3.5	3.6	3.3	3.4	3.8	4.7	4.1	5.2	5.5	6.2	6.6
Psychology	0.1	0.2	0.4	0.4	0.5	0.3	0.4	0.3	0.3	0.2	0.1	0.4	0.5	0.3
Social sciences	0.1	0.1	0.2	0.2	0.1	0.4	0.2	0.1	0.2	0.2	0.1	0.2	0.5	0.3
Engineering	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.5	0.4	0.9	1.0	1.4	0.9
Female, total S&E	0.6	1.3	1.6	1.8	2.2	2.5	2.6	2.6	3.3	3.0	4.1	5.7	6.8	7.3
Total sciences	0.6	1.3	1.6	1.8	2.2	2.5	2.6	2.6	3.3	3.0	4.0	5.5	6.6	7.1
Physical sciences	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.6	0.6	0.6	0.6
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-30.

Doctoral scientists and engineers employed in academia, by degree field, sex, and type of position: 1973–99
(Thousands)

Field of degree and sex	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Life sciences	0.4	0.8	1.1	1.2	1.6	1.8	1.8	1.8	2.2	2.3	3.0	3.7	4.6	5.1
Psychology	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5	0.3	0.3	0.7	0.8	0.9
Social sciences	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2
Part-time positions														
All, total S&E	2.9	3.2	3.4	4.5	4.0	6.0	6.5	5.7	6.2	7.4	5.9	5.5	8.9	8.2
Total sciences	2.8	3.1	3.2	4.3	3.9	5.7	6.2	5.4	5.6	6.9	5.4	5.1	8.6	7.9
Physical sciences	0.6	0.6	0.6	0.7	0.6	1.0	0.9	0.6	0.5	0.9	0.7	0.7	1.0	0.7
Mathematics	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.7	0.7
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Environmental sciences	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3
Life sciences	0.9	0.9	1.0	1.2	1.2	1.7	1.7	1.6	1.9	2.3	1.6	1.2	2.9	2.6
Psychology	0.4	0.5	0.6	1.0	0.8	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1	1.3
Social sciences	0.7	0.8	0.8	1.0	1.0	1.6	2.2	1.8	1.7	2.0	1.3	1.3	2.6	2.2
Engineering	0.1	0.1	0.1	0.3	0.2	0.4	0.3	0.3	0.5	0.5	0.5	0.4	0.3	0.4
Male, total S&E	1.5	1.8	1.8	2.7	1.9	3.5	3.6	2.7	3.1	3.8	2.3	2.4	4.4	3.4
Total sciences	1.4	1.7	1.6	2.4	1.7	3.2	3.3	2.5	2.6	3.4	1.9	2.0	4.1	3.2
Physical sciences	0.4	0.3	0.4	0.5	0.3	0.8	0.6	0.4	0.3	0.6	0.5	0.5	0.7	0.5
Mathematics	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.4
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2
Life sciences	0.4	0.5	0.4	0.5	0.4	0.7	0.7	0.5	0.8	1.0	0.4	0.3	1.3	0.8
Psychology	0.1	0.2	0.2	0.5	0.3	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.3	0.3
Social sciences	0.4	0.5	0.4	0.6	0.5	1.1	1.4	1.0	0.8	1.2	0.5	0.7	1.4	1.0
Engineering	0.1	0.1	0.1	0.3	0.2	0.3	0.3	0.3	0.5	0.5	0.4	0.3	0.2	0.2
Female, total S&E	1.4	1.5	1.6	1.9	2.1	2.5	2.9	3.0	3.1	3.5	3.6	3.1	4.5	4.9
Total sciences	1.4	1.5	1.6	1.9	2.1	2.5	2.9	2.9	3.1	3.5	3.5	3.1	4.4	4.7
Physical sciences	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.3
Mathematics	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.3
Computer sciences	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Life sciences	0.5	0.5	0.6	0.6	0.7	0.9	1.0	1.1	1.1	1.3	1.2	0.9	1.6	1.8
Psychology	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.7	0.7	0.9	1.1	1.0	0.8	1.0
Social sciences	0.3	0.3	0.3	0.4	0.5	0.5	0.9	0.8	0.8	0.8	0.8	0.7	1.2	1.2
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2

NA = not available

NOTES: Data exclude scientists and engineers with doctorates from foreign institutions. Faculty is defined by position. Senior faculty includes full and associate professors; junior faculty members are either assistant professors or instructors. Details may not add to total because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients, unpublished tabulations.

Appendix table 5-31.

Academic employment of doctoral scientists and engineers, by degree field, race/ethnicity, and type of position: 1973–99
 (Thousands)

Field of degree and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Total academic employment														
All, total S&E	118.0	134.1	145.4	155.3	167.1	176.1	190.2	195.9	206.6	210.6	213.8	217.5	232.5	240.2
Total sciences	105.6	120.6	130.7	139.5	150.9	157.9	170.3	174.7	183.8	187.8	190.6	193.7	205.9	214.7
Physical sciences	22.1	23.6	25.0	24.6	25.3	25.1	27.0	27.2	27.7	27.7	28.6	29.4	30.2	30.9
Mathematics	9.7	11.0	11.7	12.2	12.4	12.9	13.6	13.8	14.5	15.2	15.5	14.6	15.6	15.2
Computer sciences	0.0	0.0	0.0	0.1	0.3	0.5	0.8	1.1	1.5	2.0	2.5	3.1	3.3	3.7
Environmental sciences	3.4	3.9	4.2	4.2	4.6	4.8	5.2	5.6	5.9	6.1	6.4	6.4	7.3	7.8
Life sciences	34.9	39.4	42.6	47.0	51.3	54.8	58.7	61.2	64.8	66.9	68.2	71.6	77.3	81.9
Psychology	12.2	14.8	16.2	17.7	20.1	21.0	23.1	23.7	25.0	25.2	25.0	26.1	27.3	29.0
Social sciences	23.4	28.0	31.1	33.6	36.9	38.8	41.9	42.1	44.5	44.8	44.4	42.5	44.9	46.2
Engineering	12.4	13.4	14.8	15.8	16.1	18.1	19.9	21.2	22.8	22.8	23.1	23.8	26.6	25.5
White, total S&E	107.7	121.6	131.4	140.0	149.9	157.2	168.4	172.8	181.0	183.5	181.8	182.6	193.2	198.2
Total sciences	96.9	109.9	118.8	126.5	135.9	142.0	152.0	155.7	163.0	165.3	164.3	165.0	173.0	178.8
Physical sciences	19.7	21.1	22.1	21.9	22.3	21.9	23.4	23.3	23.7	23.8	23.4	23.8	24.4	25.3
Mathematics	8.8	10.0	10.6	10.8	11.0	11.5	11.9	12.2	12.6	13.0	12.9	12.0	12.6	12.3
Computer sciences	0.0	0.0	0.0	0.1	0.2	0.4	0.6	0.9	1.1	1.4	1.6	2.1	2.2	2.7
Environmental sciences	3.3	3.7	4.0	4.0	4.3	4.5	4.9	5.2	5.5	5.7	5.9	5.7	6.6	7.0
Life sciences	32.1	35.8	38.8	42.4	46.1	49.3	52.7	54.6	57.6	59.2	59.1	61.3	64.9	67.2
Psychology	11.6	13.9	15.2	16.8	18.8	19.6	21.3	22.0	23.2	23.2	22.9	23.6	24.4	25.5
Social sciences	21.4	25.3	28.2	30.5	33.1	34.7	37.2	37.5	39.4	39.1	38.6	36.5	38.0	38.9
Engineering	10.8	11.6	12.6	13.5	14.0	15.2	16.4	17.2	18.1	18.2	17.5	17.6	20.2	19.4
Asian/Pacific Islander, total S&E	5.0	6.1	6.7	9.8	10.8	11.8	14.0	15.0	16.3	16.8	20.9	22.4	25.4	26.3
Total sciences	4.0	5.0	5.4	7.8	9.1	9.4	11.1	11.5	12.2	13.1	16.2	17.5	20.3	21.7
Physical sciences	1.1	1.3	1.4	1.8	2.0	2.2	2.6	2.9	2.8	2.6	3.8	4.1	4.1	4.0
Mathematics	0.4	0.5	0.5	0.9	0.9	1.0	1.1	1.1	1.3	1.6	1.9	1.8	2.2	2.1
Computer sciences	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.5	0.7	0.9	0.9	0.9
Environmental sciences	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.4	0.5	0.5	0.6
Life sciences	1.3	1.8	2.0	3.1	3.6	3.6	4.0	4.4	4.7	5.1	6.3	6.8	8.5	9.9
Psychology	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.7	0.8
Social sciences	1.0	1.1	1.2	1.6	2.0	2.0	2.5	2.2	2.4	2.6	2.7	2.8	3.2	3.5
Engineering	1.1	1.1	1.3	1.9	1.8	2.4	3.0	3.5	4.1	3.7	4.7	4.9	5.2	4.6
Underrepresented minorities, total S&E	2.4	3.2	3.7	4.9	5.8	6.5	7.2	7.8	9.0	9.9	10.7	12.4	13.7	15.6
Total sciences	2.2	2.9	3.4	4.5	5.5	6.0	6.7	7.2	8.3	9.0	9.8	11.2	12.6	14.1
Physical sciences	0.5	0.5	0.5	0.7	0.9	0.9	0.9	1.0	1.1	1.2	1.4	1.4	1.7	1.6
Mathematics	0.2	0.2	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.7	0.8	0.7	0.8
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2
Environmental sciences	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Life sciences	0.8	1.1	1.2	1.3	1.5	1.7	1.8	2.1	2.4	2.6	2.7	3.5	3.9	4.7
Psychology	0.3	0.4	0.6	0.5	0.8	1.0	1.2	1.2	1.3	1.5	1.6	2.0	2.3	2.7
Social sciences	0.5	0.8	0.8	1.5	1.8	2.0	2.1	2.3	2.8	3.0	3.1	3.2	3.6	3.9
Engineering	0.2	0.2	0.3	0.4	0.3	0.5	0.5	0.5	0.7	0.9	0.9	1.2	1.2	1.5
Black, total S&E	1.3	1.7	1.7	1.9	2.6	3.1	3.3	3.5	3.8	4.6	4.8	5.8	6.6	7.3
Total sciences	1.2	1.6	1.7	1.9	2.5	2.9	3.2	3.3	3.5	4.2	4.5	5.4	6.1	6.6
Physical sciences	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.5	0.7	0.6	0.6
Mathematics	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Life sciences	0.4	0.6	0.6	0.6	0.6	0.8	0.9	0.9	1.0	1.2	1.3	1.7	1.9	2.1
Psychology	0.2	0.2	0.3	0.3	0.4	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.2	1.4
Social sciences	0.3	0.5	0.5	0.7	1.0	1.1	1.3	1.2	1.2	1.6	1.6	1.7	2.0	2.0
Engineering	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.4	0.3	0.5	0.5	0.7

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-31.

Academic employment of doctoral scientists and engineers, by degree field, race/ethnicity, and type of position: 1973–99
 (Thousands)

Field of degree and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Hispanic, total S&E	0.9	1.2	1.6	2.4	2.5	2.6	3.1	3.4	4.3	4.5	5.0	5.7	6.2	7.3
Total sciences	0.8	1.1	1.4	2.1	2.4	2.4	2.8	3.1	3.9	4.1	4.4	5.0	5.6	6.6
Physical sciences	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.8	0.8	0.8	0.9	0.8
Mathematics	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.5
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1
Environmental sciences	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Life sciences	0.4	0.4	0.5	0.7	0.8	0.8	0.8	1.0	1.2	1.2	1.3	1.6	1.8	2.3
Psychology	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.8	1.0	1.1
Social sciences	0.1	0.2	0.2	0.6	0.5	0.6	0.7	0.8	1.1	1.1	1.2	1.1	1.3	1.6
Engineering	0.1	0.1	0.2	0.3	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.7	0.6	0.7
American Indian/Alaskan Native, total S&E	0.2	0.3	0.4	0.6	0.7	0.7	0.8	0.8	1.0	0.8	0.9	0.9	0.9	1.0
Total sciences	0.2	0.3	0.3	0.6	0.7	0.7	0.7	0.8	0.9	0.8	0.9	0.8	0.8	0.9
Physical sciences	0.0	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Psychology	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Social sciences	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.5	0.3	0.4	0.3	0.3	0.3
Engineering	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Full-time faculty														
All, total S&E	103.3	116.4	125.6	131.2	141.9	148.4	156.9	164.4	169.8	173.1	172.4	171.4	178.4	184.0
Total sciences	92.0	104.2	112.2	116.9	127.2	132.0	139.0	145.1	149.5	153.1	152.2	151.3	156.8	163.0
Physical sciences	17.8	18.9	20.0	20.0	20.5	20.2	21.2	22.0	21.5	21.7	21.3	20.9	21.4	21.7
Mathematics	9.3	10.4	10.9	11.4	11.7	12.3	12.7	12.9	13.5	14.2	14.7	13.0	13.6	13.1
Computer sciences	0.0	0.0	0.0	0.1	0.3	0.4	0.7	0.9	1.3	1.8	2.3	2.8	3.0	3.3
Environmental sciences	3.0	3.4	3.6	3.5	3.8	4.0	4.2	4.4	4.7	4.5	4.5	4.7	5.1	5.6
Life sciences	29.5	33.1	34.9	37.3	40.9	43.5	45.6	48.1	49.3	51.1	50.8	52.8	55.2	58.1
Psychology	10.8	12.8	13.9	14.3	16.4	17.3	18.5	19.2	20.2	20.7	19.5	20.1	20.8	21.9
Social sciences	21.6	25.5	28.8	30.3	33.7	34.4	36.1	37.6	39.0	39.0	39.2	37.1	37.7	39.2
Engineering	11.3	12.2	13.5	14.3	14.7	16.4	17.9	19.3	20.2	20.1	20.1	20.0	21.5	21.1
White, total S&E	94.9	106.2	114.3	118.7	128.1	133.4	139.7	146.2	149.8	151.8	148.7	147.1	151.1	155.4
Total sciences	84.9	95.6	102.6	106.5	115.4	119.4	124.9	130.3	133.6	135.7	133.1	131.7	134.5	139.3
Physical sciences	16.1	17.2	18.0	18.0	18.5	17.8	18.8	19.3	18.9	18.9	18.0	17.8	17.9	18.3
Mathematics	8.5	9.5	9.9	10.1	10.3	10.9	11.1	11.4	11.7	12.2	12.3	10.7	11.0	10.7
Computer sciences	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.7	1.0	1.3	1.5	1.9	2.0	2.4
Environmental sciences	2.9	3.3	3.5	3.3	3.6	3.8	4.0	4.1	4.4	4.3	4.2	4.3	4.7	5.1
Life sciences	27.5	30.4	32.1	33.9	37.2	39.7	41.3	43.3	44.4	46.0	45.1	46.7	48.3	50.2
Psychology	10.3	12.1	13.0	13.6	15.4	16.2	17.1	17.9	18.8	19.2	18.0	18.4	18.8	19.6
Social sciences	19.7	23.2	26.1	27.5	30.1	30.7	32.2	33.5	34.4	33.8	34.1	31.9	31.8	33.0
Engineering	10.0	10.6	11.6	12.2	12.7	14.0	14.8	15.9	16.2	16.2	15.6	15.3	16.7	16.1
Asian/Pacific Islander, total S&E	4.0	4.7	5.0	7.8	8.4	9.1	10.9	11.7	12.3	12.6	14.8	14.5	16.5	17.0
Total sciences	3.0	3.7	3.9	6.0	6.7	7.2	8.2	8.7	8.9	9.5	11.1	10.9	12.7	13.2
Physical sciences	0.7	0.8	0.9	1.3	1.2	1.5	1.6	1.8	1.7	1.7	2.2	2.0	2.2	2.2
Mathematics	0.4	0.5	0.5	0.8	0.9	1.0	1.1	1.1	1.3	1.5	1.7	1.6	2.0	1.7
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.5	0.7	0.8	0.8	0.8
Environmental sciences	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.3
Life sciences	0.9	1.2	1.2	2.1	2.3	2.4	2.8	3.1	3.0	3.0	3.7	3.5	4.1	4.9
Psychology	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5
Social sciences	0.9	1.1	1.1	1.5	1.9	1.9	2.1	2.1	2.1	2.4	2.3	2.4	2.8	2.9
Engineering	0.9	1.0	1.1	1.8	1.7	1.9	2.7	3.0	3.4	3.1	3.7	3.6	3.8	3.8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-31.

Academic employment of doctoral scientists and engineers, by degree field, race/ethnicity, and type of position: 1973–99
 (Thousands)

Field of degree and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Underrepresented minorities, total S&E .	2.0	2.7	3.2	4.2	5.0	5.4	5.8	6.3	7.4	8.4	8.6	9.8	10.6	11.6
Total sciences	1.9	2.5	2.9	3.9	4.8	5.0	5.4	5.9	6.8	7.6	7.8	8.7	9.6	10.4
Physical sciences	0.4	0.4	0.4	0.6	0.8	0.8	0.7	0.8	0.8	1.0	1.1	1.0	1.3	1.3
Mathematics	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.6	0.7
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Environmental sciences	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Life sciences	0.7	0.9	1.0	1.1	1.3	1.3	1.4	1.6	1.8	2.0	2.0	2.6	2.7	3.1
Psychology	0.2	0.3	0.5	0.4	0.6	0.7	0.9	0.9	1.0	1.1	1.1	1.3	1.5	1.8
Social sciences	0.4	0.6	0.8	1.4	1.6	1.7	1.8	2.0	2.5	2.8	2.8	2.8	3.1	3.3
Engineering	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.8	0.8	1.1	1.0	1.1
Black, total S&E	1.1	1.4	1.5	1.7	2.3	2.5	2.7	2.8	3.2	4.0	3.8	4.6	5.0	5.5
Total sciences	1.1	1.3	1.5	1.6	2.1	2.3	2.6	2.6	3.0	3.6	3.5	4.2	4.5	4.9
Physical sciences	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.3	0.3	0.4	0.6	0.5
Mathematics	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.3	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	1.0	1.0	1.3	1.3	1.4
Psychology	0.1	0.2	0.3	0.2	0.4	0.4	0.5	0.5	0.6	0.7	0.6	0.6	0.7	1.0
Social sciences	0.3	0.4	0.4	0.6	0.9	0.9	1.1	1.0	1.1	1.5	1.4	1.5	1.7	1.7
Engineering	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.5	0.4	0.6
Hispanic, total S&E	0.7	1.0	1.3	2.0	2.1	2.2	2.4	2.7	3.3	3.7	3.9	4.4	4.8	5.2
Total sciences	0.6	0.9	1.2	1.7	2.0	2.0	2.2	2.5	3.0	3.3	3.5	3.8	4.3	4.7
Physical sciences	0.1	0.2	0.2	0.3	0.4	0.4	0.4	0.5	0.4	0.6	0.6	0.5	0.7	0.7
Mathematics	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.5
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1
Environmental sciences	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Life sciences	0.3	0.4	0.4	0.5	0.7	0.6	0.6	0.8	0.9	0.9	0.9	1.2	1.3	1.5
Psychology	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.5	0.7	0.7
Social sciences	0.1	0.2	0.2	0.5	0.5	0.5	0.5	0.7	0.9	1.0	1.0	1.0	1.1	1.3
Engineering	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.6	0.5	0.5
American Indian/Alaskan Native, total S&E	0.2	0.3	0.4	0.6	0.6	0.7	0.7	0.8	0.9	0.8	0.8	0.8	0.8	0.8
Total sciences	0.2	0.3	0.3	0.6	0.6	0.6	0.6	0.7	0.8	0.7	0.8	0.7	0.7	0.7
Physical sciences	0.0	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Psychology	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Social sciences	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.2
Engineering	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1
Postdoctorate positions														
All, total S&E	4.2	6.2	7.6	8.1	8.5	8.3	8.7	9.3	11.5	9.9	13.3	16.8	18.9	18.5
Total sciences	4.0	5.9	7.2	7.8	8.4	8.0	8.5	8.8	10.9	9.4	12.3	15.6	17.2	17.5
Physical sciences	1.7	2.1	2.2	1.9	1.9	1.4	1.9	2.0	2.4	1.9	3.0	3.9	3.2	2.9
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.5	0.5	0.6
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Environmental sciences	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.6	0.5
Life sciences	1.9	3.0	4.0	4.7	5.2	5.1	5.2	5.6	6.8	6.4	8.2	9.2	10.8	11.7
Psychology	0.2	0.4	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.5	0.4	1.1	1.3	1.2
Social sciences	0.1	0.2	0.3	0.3	0.3	0.6	0.3	0.1	0.4	0.3	0.2	0.4	0.7	0.5
Engineering	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.5	0.6	0.5	1.0	1.2	1.7	1.1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-31.

Academic employment of doctoral scientists and engineers, by degree field, race/ethnicity, and type of position: 1973–99
(Thousands)

Field of degree and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
White, total S&E	3.6	5.0	6.2	6.8	6.9	6.8	7.1	7.4	9.0	7.1	9.1	11.2	12.5	11.9
Total sciences	3.4	4.8	6.0	6.7	6.7	6.8	7.0	7.2	8.7	6.9	8.8	10.7	11.6	11.2
Physical sciences	1.4	1.7	1.7	1.5	1.3	1.2	1.3	1.3	1.6	1.2	2.0	2.3	2.0	1.8
Mathematics	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.3	0.3	0.5
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Environmental sciences	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.5	0.5
Life sciences	1.7	2.4	3.3	4.1	4.4	4.3	4.5	4.7	5.6	4.8	5.9	6.5	7.0	7.2
Psychology	0.1	0.4	0.4	0.6	0.6	0.5	0.7	0.6	0.8	0.4	0.3	0.9	1.1	0.9
Social sciences	0.1	0.2	0.3	0.3	0.3	0.5	0.3	0.1	0.3	0.2	0.1	0.3	0.6	0.3
Engineering	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.5	0.9	0.7
Asian/Pacific Islander, total S&E	0.5	1.0	1.1	1.1	1.4	1.1	1.1	1.6	1.9	2.3	3.6	4.7	5.3	5.2
Total sciences	0.4	0.9	1.0	1.0	1.4	0.9	1.1	1.3	1.6	2.0	2.9	4.0	4.7	4.9
Physical sciences	0.2	0.4	0.4	0.4	0.6	0.2	0.5	0.6	0.7	0.6	0.9	1.4	1.1	1.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0
Life sciences	0.2	0.5	0.5	0.5	0.8	0.6	0.6	0.6	0.9	1.3	1.9	2.2	3.2	3.6
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Engineering	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.3	0.7	0.7	0.7	0.2
Underrepresented minorities, total S&E	0.1	0.1	0.2	0.2	0.2	0.4	0.4	0.4	0.6	0.4	0.6	0.9	1.1	1.5
Total sciences	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.3	0.5	0.4	0.6	0.9	1.0	1.4
Physical sciences	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.4	0.5	0.6	0.8
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.2
Social sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Engineering	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Black, total S&E	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.5
Total sciences	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.5
Physical sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.3
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Social sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Hispanic, total S&E	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.4	0.6	0.5	0.9
Total sciences	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.3	0.4	0.6	0.5	0.8
Physical sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.5
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Engineering	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-31.

Academic employment of doctoral scientists and engineers, by degree field, race/ethnicity, and type of position: 1973–99
 (Thousands)

Field of degree and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
American Indian/Alaskan Native, total S&E														
Total sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Physical sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Full-time nonfaculty and part-time positions														
All, total S&E	10.5	11.5	12.2	15.9	16.6	19.4	24.6	22.1	25.4	27.6	28.1	29.4	35.3	37.5
Total sciences	9.6	10.5	11.3	14.8	15.3	18.0	22.8	20.7	23.3	25.4	26	26.8	31.9	34.2
Physical sciences	2.6	2.5	2.7	2.7	3.0	3.5	3.9	3.3	3.8	4.2	4.4	4.5	5.6	6.3
Mathematics	0.4	0.6	0.7	0.7	0.6	0.5	0.7	0.6	0.8	0.9	0.8	1.1	1.5	1.5
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.3
Environmental sciences	0.3	0.4	0.4	0.6	0.6	0.7	0.9	0.9	0.9	1.2	1.4	1.3	1.6	1.7
Life sciences	3.4	3.3	3.7	5.0	5.2	6.3	7.8	7.6	8.7	9.5	9.2	9.6	11.3	12.0
Psychology	1.2	1.5	1.8	2.8	3.0	3.1	3.9	3.8	4.0	4.0	5.1	5.0	5.2	5.9
Social sciences	1.6	2.2	1.9	2.9	2.9	3.8	5.5	4.3	5.1	5.5	5.0	5.0	6.5	6.5
Engineering	0.9	1.0	0.9	1.2	1.3	1.4	1.8	1.4	2.0	2.2	2.0	2.5	3.4	3.3
White non-Hispanic, total S&E	9.3	10.4	10.9	14.5	15.0	17.0	21.6	19.3	22.2	24.6	24.0	24.3	29.6	31.0
Total sciences	8.6	9.5	10.1	13.4	13.7	15.8	20.0	18.2	20.6	22.8	22.4	22.5	27.0	28.3
Physical sciences	2.2	2.3	2.4	2.5	2.6	3.0	3.3	2.7	3.2	3.6	3.5	3.7	4.4	5.2
Mathematics	0.3	0.5	0.6	0.6	0.6	0.5	0.7	0.6	0.7	0.8	0.6	0.9	1.2	1.1
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2
Environmental sciences	0.3	0.4	0.4	0.6	0.6	0.6	0.8	0.9	0.8	1.2	1.3	1.1	1.5	1.4
Life sciences	3.0	2.9	3.3	4.4	4.5	5.3	6.9	6.6	7.5	8.4	8.1	8.1	9.5	9.8
Psychology	1.1	1.5	1.7	2.6	2.8	2.9	3.5	3.5	3.6	3.6	4.5	4.3	4.5	5.0
Social sciences	1.5	2.0	1.7	2.7	2.7	3.5	4.7	3.9	4.7	5.1	4.4	4.3	5.6	5.5
Engineering	0.7	0.9	0.8	1.1	1.2	1.1	1.6	1.1	1.6	1.8	1.6	1.8	2.7	2.6
Asian/Pacific Islander, total S&E	0.6	0.4	0.6	0.9	1.0	1.6	2.0	1.8	2.0	1.9	2.5	3.2	3.6	4.1
Total sciences	0.5	0.4	0.5	0.9	1.0	1.4	1.8	1.5	1.7	1.5	2.2	2.6	2.9	3.5
Physical sciences	0.2	0.1	0.1	0.2	0.2	0.5	0.5	0.5	0.5	0.4	0.7	0.7	0.9	0.8
Mathematics	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.2
Life sciences	0.2	0.1	0.3	0.4	0.6	0.7	0.7	0.7	0.9	0.8	0.8	1.1	1.2	1.5
Psychology	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Social sciences	0.0	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.2	0.2	0.3	0.3	0.4	0.5
Engineering	0.1	0.0	0.1	0.1	0.0	0.2	0.2	0.3	0.4	0.3	0.3	0.6	0.6	0.6
Underrepresented minorities, total S&E	0.3	0.4	0.3	0.5	0.5	0.8	1.0	1.1	1.1	1.1	1.5	1.8	2.1	2.5
Total sciences	0.3	0.4	0.3	0.4	0.5	0.7	0.9	1.0	1.0	1.0	1.4	1.7	2.0	2.4
Physical sciences	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.6	0.8
Psychology	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.6	0.6	0.7
Social sciences	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.5
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-31.

Academic employment of doctoral scientists and engineers, by degree field, race/ethnicity, and type of position: 1973–99
 (Thousands)

Field of degree and race/ethnicity	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Black, total S&E	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.6	0.4	0.5	0.7	0.9	1.2	1.2
Total sciences	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.6	0.4	0.5	0.7	0.9	1.1	1.2
Physical sciences	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.3	0.4
Psychology	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.4	0.4	0.3
Social sciences	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.3
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hispanic, total S&E	0.1	0.1	0.2	0.2	0.3	0.3	0.5	0.5	0.6	0.5	0.7	0.7	0.8	1.2
Total sciences	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.8	1.1
Physical sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.3	0.3
Psychology	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3
Social sciences	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1
American Indian/Alaskan Native,														
total S&E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Total sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1
Physical sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mathematics	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Computer sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environmental sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Life sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Psychology	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Social sciences	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Engineering	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NA = not available

NOTES: Data exclude university-managed federally funded research and development centers. Because of survey coverage, data also exclude scientists and engineers with doctorates from foreign institutions. Faculty positions include full, associate, and assistant professors and instructors. Respondents with unknown racial/ethnic classification or faculty status are excluded. Underrepresented minorities are black, Hispanic, and American Indian/Alaskan Native, respondents. Details may not add to totals because of rounding.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients, unpublished tabulations.

See figure 5-26.

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Science & Engineering Indicators – 2002

Appendix table 5-32.

Academic doctoral scientists and engineers, by primary work activity: 1973–99
 (Thousands)

Year	Total employment				Full-time faculty			
	Total	Research	Teaching	Other	Total	Research	Teaching	Other
S&E total								
1973	118.0	27.8	73.3	15.0	103.3	19.8	69.9	12.0
1975	134.1	30.8	83.8	16.4	116.4	21.4	80.2	12.2
1977	145.4	37.0	82.2	23.8	125.6	25.8	78.4	19.6
1979	155.3	41.3	83.8	29.1	131.2	28.1	79.7	22.6
1981	167.1	46.5	95.9	23.0	141.9	31.8	92.1	16.7
1983	176.1	48.9	97.7	28.1	148.4	33.6	91.9	21.8
1985	190.2	55.9	101.0	30.5	156.9	39.5	94.9	20.3
1987	195.9	66.5	99.3	29.5	164.4	48.6	93.6	21.8
1989	206.6	72.2	100.9	32.6	169.8	51.6	93.9	23.4
1991	210.6	73.9	103.4	32.3	173.1	53.8	96.7	22.4
1993	213.8	80.2	98.3	35.2	172.4	56.8	91.4	24.1
1995	217.5	83.0	100.2	34.3	171.4	56.6	91.9	22.9
1997	232.5	88.6	105.4	38.6	178.4	58.0	95.4	24.9
1999	240.2	91.4	108.6	40.2	184.0	60.4	98.6	25.0
Physical sciences								
1973	22.1	5.9	14.0	1.9	17.8	3.0	13.3	1.3
1975	23.6	6.4	14.6	2.1	18.9	3.4	13.9	1.3
1977	25.0	7.9	13.8	3.0	20.0	4.4	13.1	2.3
1979	24.6	7.5	13.4	3.6	20.0	4.4	12.7	2.7
1981	25.3	8.0	14.7	2.4	20.5	4.6	14.1	1.6
1983	25.1	7.7	14.0	3.1	20.2	4.5	13.1	2.4
1985	27.0	9.4	14.4	3.0	21.2	5.6	13.6	1.9
1987	27.2	10.2	14.0	2.9	22.0	6.5	13.4	2.0
1989	27.7	10.9	13.7	3.0	21.5	6.5	12.8	2.2
1991	27.7	10.6	13.8	3.1	21.7	6.7	12.8	2.1
1993	28.6	12.0	12.8	3.8	21.3	7.1	11.8	2.3
1995	29.4	12.6	12.9	3.8	20.9	6.9	11.6	2.3
1997	30.2	12.7	13.5	4.0	21.4	6.8	12.2	2.4
1999	30.9	12.2	14.0	4.7	21.7	6.7	12.7	2.3
Mathematics								
1973	9.7	1.5	7.4	0.6	9.3	1.4	7.2	0.6
1975	11.0	1.5	8.5	0.9	10.4	1.3	8.2	0.7
1977	11.7	1.8	8.5	1.2	10.9	1.6	8.1	1.1
1979	12.2	2.1	8.6	1.4	11.4	1.8	8.3	1.3
1981	12.4	1.9	9.1	1.2	11.7	1.8	8.8	1.0
1983	12.9	2.0	9.4	1.4	12.3	1.8	9.0	1.3
1985	13.6	2.7	9.3	1.4	12.7	2.5	8.9	1.2
1987	13.8	3.2	9.2	1.3	12.9	2.7	9.0	1.2
1989	14.5	3.5	9.5	1.4	13.5	3.2	9.0	1.2
1991	15.2	3.5	10.1	1.5	14.2	3.2	9.6	1.3
1993	15.5	3.4	10.3	1.8	14.7	3.1	10.0	1.6
1995	14.6	3.3	9.8	1.5	13.0	2.7	9.0	1.3
1997	15.6	3.5	10.2	1.8	13.6	2.8	9.3	1.5
1999	15.2	2.9	10.5	1.7	13.1	2.3	9.4	1.4
Computer sciences								
1973	NA	NA	NA	NA	NA	NA	NA	NA
1975	NA	NA	NA	NA	NA	NA	NA	NA
1977	NA	NA	NA	NA	NA	NA	NA	NA
1979	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
1981	0.3	0.1	0.2	0.0	0.3	0.1	0.2	0.0
1983	0.5	0.2	0.3	0.0	0.4	0.1	0.3	0.0
1985	0.8	0.4	0.3	0.1	0.7	0.3	0.3	0.1
1987	1.1	0.7	0.3	0.1	0.9	0.5	0.3	0.0
1989	1.5	0.8	0.6	0.1	1.3	0.7	0.5	0.1
1991	2.0	1.1	0.7	0.2	1.8	1.0	0.7	0.1
1993	2.5	0.9	1.4	0.2	2.3	0.7	1.3	0.2
1995	3.1	1.0	1.8	0.3	2.8	0.9	1.7	0.2
1997	3.3	1.1	1.8	0.5	3.0	1.0	1.7	0.3
1999	3.7	1.1	2.1	0.5	3.3	0.9	2.0	0.3

See explanatory notes, and SOURCE, if any, at end of table

Appendix table 5-32.

Academic doctoral scientists and engineers, by primary work activity: 1973–99
 (Thousands)

Year	Total employment				Full-time faculty			
	Total	Research	Teaching	Other	Total	Research	Teaching	Other
Earth, atmospheric, and ocean sciences								
1973	3.4	0.7	2.3	0.4	3.0	0.5	2.2	0.3
1975	3.9	0.8	2.7	0.3	3.4	0.5	2.6	0.2
1977	4.2	1.0	2.7	0.4	3.6	0.6	2.6	0.3
1979	4.2	1.0	2.5	0.7	3.5	0.6	2.4	0.5
1981	4.6	1.4	2.8	0.4	3.8	0.8	2.8	0.2
1983	4.8	1.5	2.8	0.5	4.0	0.9	2.7	0.4
1985	5.2	1.6	3.0	0.6	4.2	0.9	2.9	0.4
1987	5.6	2.1	2.9	0.5	4.4	1.3	2.8	0.3
1989	5.9	2.4	3.0	0.5	4.7	1.5	2.8	0.3
1991	6.0	2.5	3.0	0.5	4.5	1.5	2.8	0.2
1993	6.4	2.7	2.9	0.8	4.5	1.6	2.5	0.4
1995	6.4	2.6	3.0	0.8	4.7	1.5	2.8	0.4
1997	7.3	2.9	3.2	1.2	5.1	1.6	2.9	0.6
1999	7.8	2.9	3.8	1.1	5.6	1.5	3.4	0.7
Life sciences								
1973	34.9	12.8	16.6	4.9	29.5	9.3	15.7	3.9
1975	39.4	14.5	19.0	4.8	33.1	10.3	18.1	3.7
1977	42.6	16.6	18.1	7.3	34.9	11.4	17.1	6.0
1979	47.0	19.7	18.1	9.0	37.3	13.1	17.1	6.9
1981	51.3	23.2	20.5	7.0	40.9	15.5	19.6	5.3
1983	54.9	24.3	21.1	8.9	43.5	16.5	19.6	7.0
1985	58.7	27.1	20.9	9.7	45.6	18.6	19.5	6.7
1987	61.3	31.5	20.1	9.5	48.1	22.3	18.7	7.1
1989	64.8	33.8	20.3	10.3	49.3	22.6	18.7	7.6
1991	66.9	34.5	20.9	11.3	51.1	23.8	19.1	8.1
1993	68.2	36.0	20.2	12.0	50.8	24.1	18.4	8.3
1995	71.6	37.7	21.8	12.2	52.8	24.7	19.8	8.3
1997	77.3	40.5	23.4	13.4	55.2	25.7	20.7	8.7
1999	81.9	43.2	25.1	13.6	58.1	27.0	22.5	8.6
Psychology								
1973	12.2	2.0	7.7	2.3	10.8	1.6	7.3	1.8
1975	14.8	2.2	9.7	2.7	12.8	1.5	9.2	1.9
1977	16.2	2.8	9.4	3.8	13.9	2.0	8.9	2.8
1979	17.7	3.4	9.5	4.6	14.3	2.2	8.9	3.2
1981	20.1	4.1	11.7	4.3	16.4	2.5	11.0	2.9
1983	21.0	4.4	11.6	4.9	17.3	2.9	10.9	3.4
1985	23.1	4.6	12.3	5.9	18.5	3.3	11.6	3.4
1987	23.7	5.2	13.0	5.6	19.2	3.9	12.1	3.3
1989	25.0	5.9	12.8	6.2	20.2	4.5	11.9	3.6
1991	25.2	6.2	12.8	6.1	20.7	5.0	12.2	3.6
1993	25.0	6.7	11.6	6.7	19.5	5.3	10.5	3.7
1995	26.1	7.4	11.9	6.9	20.1	5.4	10.9	3.8
1997	27.3	8.0	12.4	7.0	20.8	5.9	11.3	3.6
1999	29.0	8.6	13.0	7.3	21.9	6.1	11.9	3.9
Social sciences								
1973	23.4	2.8	16.9	3.1	21.6	2.5	16.1	2.6
1975	28.0	3.2	20.5	3.6	25.5	2.7	19.5	2.6
1977	31.1	4.1	21.0	5.2	28.8	3.6	20.1	4.5
1979	33.6	4.2	22.6	6.5	30.4	3.4	21.4	5.3
1981	36.9	4.5	26.8	5.1	33.7	3.8	25.7	3.8
1983	38.9	4.9	27.7	5.9	34.4	3.8	25.9	4.5
1985	42.0	5.7	29.1	6.3	36.1	4.6	26.8	4.0
1987	42.2	7.5	28.5	6.0	37.7	6.3	26.5	4.7
1989	44.5	8.2	28.8	7.4	39.0	7.1	26.4	5.3
1991	44.8	8.4	29.8	6.4	39.0	7.1	27.6	4.2
1993	44.4	10.7	27.6	6.1	39.2	8.9	25.9	4.5
1995	42.5	9.8	26.9	5.8	37.1	8.3	24.6	4.2
1997	44.9	9.8	28.3	6.8	37.7	7.6	25.3	4.8
1999	46.2	11.1	28.0	7.2	39.2	9.2	24.9	5.1

See explanatory notes, and SOURCE, if any, at end of table

Appendix table 5-32.

Academic doctoral scientists and engineers, by primary work activity: 1973–99
 (Thousands)

Year	Total employment				Full-time faculty			
	Total	Research	Teaching	Other	Total	Research	Teaching	Other
Engineering								
1973	12.4	2.1	8.4	1.7	11.3	1.5	8.1	1.5
1975	13.4	2.3	8.9	2.0	12.2	1.7	8.7	1.6
1977	14.8	2.9	8.7	2.9	13.5	2.3	8.5	2.6
1979	15.8	3.4	9.1	3.3	14.3	2.6	8.9	2.8
1981	16.1	3.3	10.1	2.7	14.7	2.7	10.0	1.9
1983	18.1	3.9	10.8	3.4	16.4	3.0	10.4	2.9
1985	19.9	4.4	11.7	3.5	17.9	3.7	11.2	2.6
1987	21.2	6.2	11.3	3.7	19.3	5.0	11.0	3.2
1989	22.8	6.9	12.2	3.7	20.2	5.4	11.7	3.1
1991	22.8	7.2	12.2	3.3	20.1	5.5	11.8	2.7
1993	23.1	7.9	11.6	3.7	20.1	6.0	11.0	3.1
1995	23.8	8.7	12.1	3.0	20.0	6.3	11.5	2.2
1997	26.6	10.1	12.6	3.8	21.5	6.7	12.0	2.8
1999	25.5	9.4	12.1	4.0	21.1	6.7	11.7	2.7

NA = not available

NOTES: Data exclude scientists and engineers with doctorates from foreign institutions. Field refers to field of degree.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients, unpublished tabulations.

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Appendix table 5-33.

Academic doctoral scientists and engineers whose primary or secondary work activity is teaching or research: 1973–99
 (Thousands)

Field of degree	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999
Total employment														
Teaching is primary or secondary work activity														
Total S&E.....	94.9	110.4	110.8	115.2	125.2	131.3	138.5	151.4	155.8	160.8	145.2	147.1	153.5	158.7
Physical sciences	17.5	18.9	18.6	18.4	18.9	18.6	19.6	20.9	20.4	20.9	18.5	19.2	18.8	20.2
Mathematics	8.8	10.3	10.6	10.9	11.0	11.5	12.2	12.8	13.3	14.0	13.5	12.8	13.3	13.3
Computer science.....	0.0	0.0	0.0	0.1	0.3	0.4	0.6	0.8	1.3	1.8	2.0	2.5	2.6	2.9
Earth, atmospheric, and ocean sciences ...	2.7	3.2	3.2	3.1	3.5	3.8	3.8	4.3	4.5	4.7	4.1	4.3	4.6	5.0
Life sciences	25.3	29.6	28.3	29.8	32.9	34.6	35.0	40.5	41.4	43.3	36.5	38.6	41.6	43.6
Psychology	9.8	12.3	12.4	13.2	15.0	15.3	16.5	18.2	18.6	18.8	17.3	17.8	18.0	19.0
Social sciences	20.2	24.7	25.9	27.6	31.0	32.8	35.2	36.7	37.6	39.0	36.5	35.2	36.6	37.2
Engineering	10.5	11.4	11.7	12.1	12.7	14.3	15.6	17.2	18.6	18.3	16.8	16.8	18.0	17.5
Research is primary or secondary work activity														
Total S&E.....	82.3	90.6	85.0	90.0	100.7	104.7	115.2	144.0	151.6	156.6	150.1	153.5	164.7	168.1
Physical sciences	16.3	16.9	16.3	15.4	16.3	16.1	17.7	20.3	20.8	20.8	20.0	20.6	21.8	21.6
Mathematics	6.8	7.5	6.8	6.9	6.8	7.2	7.6	9.7	10.2	10.7	9.5	9.4	10.1	9.9
Computer science.....	0.0	0.0	0.0	0.1	0.3	0.4	0.6	1.0	1.3	1.7	2.0	2.4	2.4	2.6
Earth, atmospheric, and ocean sciences ...	2.5	2.8	2.9	2.7	3.2	3.3	3.7	4.6	4.9	5.1	5.0	5.1	5.6	5.7
Life sciences	26.0	29.0	28.7	32.1	37.1	38.3	41.4	48.8	51.8	53.3	51.8	53.8	57.9	60.8
Psychology	7.3	8.5	7.7	8.3	9.9	10.5	10.7	14.3	14.3	15.7	14.9	15.6	16.1	17.2
Social sciences	14.3	16.9	13.8	14.7	17.6	17.8	20.9	28.5	30.5	31.1	29.3	28.1	29.8	30.9
Engineering	9.0	9.0	8.9	9.8	9.5	11.2	12.5	16.8	17.6	18.2	17.5	18.5	20.9	19.4
Full-time faculty														
Teaching is primary or secondary work activity														
Total S&E.....	88.6	103.4	104.7	107.9	117.7	122.3	127.9	141.0	143.6	148.1	134.0	134.0	138.1	143.1
Physical sciences	15.9	17.4	17.3	17.2	17.6	17.3	18.1	19.5	18.9	19.2	17.0	17.2	17.2	18.2
Mathematics	8.5	9.9	10.1	10.5	10.6	11.1	11.7	12.3	12.7	13.3	13.1	11.8	12.0	11.8
Computer science.....	0.0	0.0	0.0	0.1	0.3	0.3	0.6	0.8	1.3	1.7	1.9	2.4	2.4	2.9
Earth, atmospheric, and ocean sciences ...	2.6	3.1	3.1	3.0	3.3	3.6	3.7	4.0	4.2	4.2	3.6	3.9	4.1	4.5
Life sciences	23.2	27.3	26.4	27.5	30.6	31.6	31.9	36.9	37.3	38.7	32.8	34.4	36.4	38.5
Psychology	9.1	11.4	11.6	12.0	13.7	14.1	15.1	16.7	16.9	17.5	15.4	16.0	16.1	16.9
Social sciences	19.1	23.3	24.7	26.1	29.5	30.6	32.1	34.3	34.7	36.0	34.1	32.3	32.9	33.5
Engineering	10.1	10.9	11.4	11.5	12.2	13.7	14.8	16.5	17.6	17.5	16.1	16.0	16.9	16.8
Research is primary or secondary work activity														
Total S&E.....	72.0	78.9	71.6	74.1	83.8	86.9	95.1	121.4	125.8	131.4	121.7	121.7	127.0	129.2
Physical sciences	13.0	13.4	12.4	11.7	12.5	12.5	13.4	16.1	16.0	16.4	14.4	14.2	14.9	14.7
Mathematics	6.6	7.1	6.4	6.4	6.5	6.9	7.3	9.1	9.8	10.2	9.1	8.4	8.9	8.5
Computer science.....	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.8	1.2	1.6	1.8	2.2	2.2	2.4
Earth, atmospheric, and ocean sciences ...	2.1	2.5	2.5	2.2	2.6	2.6	2.9	3.6	4.0	3.8	3.6	3.7	3.9	4.0
Life sciences	21.8	24.1	22.9	24.7	28.7	29.6	31.9	38.3	39.0	41.0	38.4	39.5	41.2	42.5
Psychology	6.6	7.5	6.7	6.6	8.0	8.8	9.0	12.1	12.2	13.9	12.6	12.9	13.3	13.9
Social sciences	13.6	15.9	12.9	13.5	16.5	16.0	18.8	26.1	27.9	28.3	26.6	25.3	25.8	27.2
Engineering	8.2	8.3	8.0	8.9	8.8	10.2	11.4	15.2	15.7	16.2	15.1	15.5	16.7	15.9

NOTES: Data excludes scientists and engineers with foreign-earned doctorates. Faculty includes full, associate, and assistant professors and instructors.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients.

Science & Engineering Indicators – 2002

Appendix table 5-34.

Estimates of number of academic doctoral researchers and graduate research assistants, by field of degree or study: 1973–99

Year	Total S&E	Physical sciences	Mathematics	Computer science	Earth, atmospheric, and ocean sciences	Life sciences	Psychology	Social sciences	Engineering
Academic doctoral researchers plus graduate research assistants									
1973	118.2	22.6	7.5	0.7	5.1	35.5	9.2	18.3	19.4
1975	130.6	23.3	8.1	0.7	5.6	40.3	10.7	21.7	20.0
1977	128.7	23.1	7.6	0.7	6.1	41.8	10.0	18.7	20.7
1979	139.0	23.2	7.7	0.9	6.3	47.5	10.8	19.9	22.6
1981	153.4	24.9	7.6	1.4	6.7	53.4	12.8	22.8	23.9
1983	159.6	25.2	8.0	1.8	6.8	54.8	13.5	22.8	26.7
1985	176.2	28.0	8.6	2.7	7.4	59.3	13.8	26.0	30.4
1987	214.2	31.9	10.8	3.8	8.2	69.0	17.5	34.0	39.0
1989	230.7	33.2	11.5	4.6	9.1	75.0	18.1	36.7	42.2
1991	241.8	33.0	12.1	5.3	9.5	79.1	19.9	37.9	45.0
1993	240.3	32.3	10.9	5.8	9.7	79.8	19.5	36.7	45.4
1995	243.4	32.4	10.9	6.3	9.8	83.1	20.2	35.3	45.5
1997	252.7	33.1	11.5	6.4	9.9	86.5	20.9	36.5	47.8
1999	259.4	32.9	11.2	7.5	10.0	89.8	22.0	38.1	48.1
Academic doctoral researchers									
1973	82.3	16.3	6.8	0.0	2.5	26.0	7.3	14.3	9.0
1975	90.6	16.9	7.5	0.0	2.8	29.0	8.5	16.9	9.0
1977	85.0	16.3	6.8	0.0	2.9	28.7	7.7	13.8	8.9
1979	90.0	15.4	6.9	0.1	2.7	32.1	8.3	14.7	9.8
1981	100.7	16.3	6.8	0.3	3.2	37.1	9.9	17.6	9.5
1983	104.7	16.1	7.2	0.4	3.3	38.3	10.5	17.8	11.2
1985	115.2	17.7	7.6	0.6	3.7	41.4	10.7	20.9	12.5
1987	144.0	20.3	9.7	1.0	4.6	48.8	14.3	28.5	16.8
1989	151.6	20.8	10.2	1.3	4.9	51.8	14.3	30.5	17.6
1991	156.6	20.8	10.7	1.7	5.1	53.3	15.7	31.1	18.2
1993	150.1	20.0	9.5	2.0	5.0	51.8	14.9	29.3	17.5
1995	153.5	20.6	9.4	2.4	5.1	53.8	15.6	28.1	18.5
1997	164.7	21.8	10.1	2.4	5.6	57.9	16.1	29.8	20.9
1999	168.1	21.6	9.9	2.6	5.7	60.8	17.2	30.9	19.4
Graduate research assistants									
1973	35.9	6.3	0.7	0.7	2.6	9.5	1.9	4.0	10.4
1975	40.0	6.4	0.6	0.7	2.8	11.3	2.2	4.8	11.0
1977	43.7	6.8	0.8	0.7	3.2	13.1	2.3	4.9	11.8
1979	49.0	7.8	0.8	0.8	3.6	15.4	2.5	5.2	12.8
1981	52.7	8.6	0.8	1.1	3.5	16.3	2.9	5.2	14.4
1983	54.9	9.1	0.8	1.4	3.5	16.5	3.0	5.0	15.5
1985	61.0	10.3	1.0	2.1	3.7	17.9	3.1	5.1	17.9
1987	70.2	11.6	1.1	2.8	3.6	20.2	3.2	5.5	22.2
1989	79.1	12.4	1.3	3.3	4.2	23.2	3.8	6.2	24.6
1991	85.2	12.2	1.4	3.6	4.4	25.8	4.2	6.8	26.8
1993	90.2	12.3	1.4	3.8	4.7	28.0	4.6	7.4	27.9
1995	89.9	11.8	1.5	3.9	4.7	29.3	4.6	7.2	27.0
1997	88.0	11.3	1.4	4.0	4.3	28.6	4.8	6.7	26.9
1999	91.3	11.3	1.3	4.9	4.3	29.0	4.8	7.2	28.7

NOTE: Graduate research assistants are full-time graduate students with research assistantships as their primary mechanism of support. Academic doctoral researchers are headcounts of those with research as primary or secondary work activity. Foreign-earned doctorates are excluded.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients and Survey of Graduate Students and Postdoctorates in Science and Engineering.

Science & Engineering Indicators – 2002

See figure 5-29.

Appendix table 5-35.

Estimates of total academic employment, doctoral researchers and graduate research assistants, by Carnegie institution type: 1973–99

Year	Total employment		Researcher headcount		Research is primary		Graduate research assistant	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All universities and colleges								
1973	118.0	100	82.3	100	27.8	100	35.9	100
1975	134.1	100	90.6	100	30.8	100	40.0	100
1977	145.4	100	85.0	100	37.0	100	43.7	100
1979	155.3	100	90.0	100	41.3	100	49.0	100
1981	167.1	100	100.7	100	46.5	100	52.7	100
1983	176.1	100	104.7	100	48.9	100	54.9	100
1985	190.2	100	115.2	100	55.9	100	61.0	100
1987	195.9	100	144.0	100	66.5	100	70.2	100
1989	206.6	100	151.6	100	72.2	100	79.1	100
1991	210.6	100	156.6	100	73.9	100	85.2	100
1993	213.8	100	150.1	100	80.2	100	90.2	100
1995	217.5	100	153.5	100	83.0	100	89.9	100
1997	232.5	100	164.7	100	88.6	100	88.0	100
1999	240.2	100	168.1	100	91.4	100	91.3	100
Research universities								
1973	65.2	57.9	52.5	65.5	22.9	84.9	32.3	89.9
1975	73.4	57.0	58.0	65.2	25.5	83.8	35.6	89.0
1977	78.2	56.8	55.9	67.6	29.5	81.6	38.8	89.0
1979	83.5	57.7	59.0	68.5	32.1	80.5	42.6	86.9
1981	91.0	57.0	66.6	67.4	37.5	81.9	45.2	85.8
1983	89.9	55.9	66.3	67.1	37.4	81.6	47.1	85.8
1985	102.8	56.5	75.1	66.3	45.4	82.2	52.2	85.6
1987	106.9	56.6	90.0	63.7	53.7	81.6	59.9	85.3
1989	112.5	56.4	94.7	63.5	58.1	81.2	66.5	84.1
1991	111.6	55.4	93.8	61.3	57.9	79.3	70.1	82.3
1993	112.9	55.5	91.1	62.4	60.6	77.0	73.9	81.9
1995	112.8	54.7	92.0	61.7	62.4	76.8	73.1	81.3
1997	113.6	54.5	92.3	60.8	60.6	75.4	70.6	80.2
1999	117.2	53.9	95.5	60.9	64.3	75.8	73.1	80.0
Doctorate-granting institutions								
1973	14.0	12.4	9.9	12.3	1.7	6.4	3.1	8.6
1975	15.9	12.3	10.6	11.9	1.8	5.8	3.7	9.3
1977	17.2	12.5	9.4	11.4	2.4	6.6	4.0	9.2
1979	17.2	11.9	9.2	10.6	2.6	6.4	4.4	9.1
1981	18.8	11.8	10.5	10.6	2.6	5.6	5.0	9.5
1983	19.5	12.2	10.7	10.8	2.8	6.0	5.3	9.6
1985	21.2	11.6	12.4	11.0	3.5	6.3	5.8	9.5
1987	22.2	11.8	16.2	11.5	4.4	6.7	6.7	9.6
1989	23.5	11.8	16.8	11.3	4.9	6.9	7.9	10.0
1991	24.9	12.3	18.4	12.1	5.9	8.0	9.2	10.8
1993	24.2	11.9	17.4	11.9	6.7	8.4	9.9	11.0
1995	25.0	12.1	17.7	11.9	7.2	8.8	9.9	11.0
1997	25.8	12.4	19.1	12.6	8.2	10.2	10.3	11.7
1999	26.3	12.1	19.3	12.3	8.2	9.7	10.7	11.7
Comprehensive institutions								
1973	20.8	18.5	10.7	13.4	0.6	2.2	0.1	0.3
1975	24.3	18.8	12.1	13.7	0.7	2.4	0.3	0.6
1977	25.9	18.8	10.0	12.1	1.2	3.3	0.3	0.7
1979	26.2	18.1	10.0	11.6	1.5	3.8	1.3	2.6
1981	29.9	18.8	11.7	11.9	1.2	2.6	1.6	3.0
1983	30.9	19.3	12.5	12.7	1.3	2.9	1.8	3.3
1985	34.9	19.2	14.1	12.5	1.5	2.7	1.1	1.8
1987	35.3	18.7	19.7	14.0	1.8	2.7	1.3	1.9
1989	37.4	18.8	21.1	14.1	2.4	3.3	2.7	3.4
1991	38.7	19.2	23.7	15.5	2.8	3.8	3.5	4.1
1993	38.4	18.9	20.9	14.3	3.9	5.0	3.7	4.1
1995	40.5	19.7	22.5	15.1	4.1	5.1	4.2	4.7
1997	41.2	19.8	23.2	15.3	4.5	5.5	4.2	4.8
1999	42.6	19.6	22.9	14.6	3.7	4.3	4.6	5.0

See explanatory notes, if any, and SOURCE at end of table

Appendix table 5-35.

Estimates of total academic employment, doctoral researchers and graduate research assistants, by Carnegie institution type: 1973–99

Year	Total employment		Researcher headcount		Research is primary		Graduate research assistant	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Free-standing medical institutions								
1973	3.3	2.9	2.6	3.2	1.5	5.5	0.3	0.7
1975	4.3	3.4	3.2	3.6	2.1	6.9	0.3	0.6
1977	4.9	3.6	3.5	4.2	2.5	6.9	0.3	0.7
1979	5.9	4.1	4.2	4.8	3.1	7.7	0.4	0.9
1981	7.2	4.5	5.3	5.3	4.1	9.0	0.5	0.9
1983	7.0	4.4	5.1	5.1	3.9	8.6	0.5	0.9
1985	8.3	4.6	5.9	5.2	4.5	8.1	0.7	1.2
1987	9.0	4.8	7.2	5.1	5.3	8.0	1.1	1.6
1989	9.7	4.9	7.6	5.1	5.6	7.9	1.6	2.0
1991	9.6	4.8	7.8	5.1	6.0	8.3	1.9	2.2
1993	10.8	5.3	8.2	5.6	6.4	8.2	2.2	2.4
1995	11.2	5.4	8.4	5.6	6.7	8.2	2.4	2.6
1997	9.8	4.7	7.4	4.8	5.9	7.3	2.5	2.8
1999	11.9	5.5	9.2	5.9	7.5	8.9	2.6	2.8
All others								
1973	9.3	8.2	4.5	5.6	0.3	1.0	0.2	0.5
1975	10.9	8.5	5.0	5.6	0.3	1.1	0.2	0.4
1977	11.4	8.3	3.9	4.7	0.6	1.6	0.2	0.5
1979	12.0	8.3	3.9	4.5	0.6	1.5	0.2	0.5
1981	12.6	7.9	4.7	4.8	0.4	1.0	0.4	0.8
1983	13.3	8.3	4.3	4.4	0.4	0.9	0.3	0.6
1985	14.7	8.1	5.7	5.0	0.4	0.7	1.1	1.9
1987	15.4	8.1	8.1	5.7	0.6	1.0	1.2	1.7
1989	16.2	8.1	9.0	6.1	0.6	0.8	0.3	0.4
1991	16.6	8.2	9.3	6.1	0.4	0.6	0.5	0.6
1993	17.1	8.4	8.6	5.9	1.2	1.5	0.6	0.6
1995	16.7	8.1	8.5	5.7	0.9	1.1	0.4	0.5
1997	18.0	8.7	9.7	6.4	1.3	1.6	0.4	0.4
1999	19.6	9.0	9.8	6.2	1.1	1.3	0.4	0.5

NOTES: Numbers are in thousands. Headcounts are the sum of respondents for whom research is either the primary or secondary work activity. Foreign-earned doctorates are excluded. Graduate research assistants are full-time graduate students with primary research assistantship support. Carnegie type is based on 1994 typology. Details do not add to totals because of omission of those with unknown Carnegie type.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients and Survey of Graduate Students and Postdoctorates in Science and Engineering.

See text table 5-12 in Volume I.

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Appendix table 5-36.

Estimates of academic doctoral researchers by type of position

Year	Employment		Researcher headcount		Research is primary	
	Number	Percent	Number	Percent	Number	Percent
Total employment						
1973	118.0	100.0	82.3	100.0	27.8	100.0
1975	134.1	100.0	90.6	100.0	30.8	100.0
1977	145.4	100.0	85.0	100.0	37.0	100.0
1979	155.3	100.0	90.0	100.0	41.3	100.0
1981	167.1	100.0	100.7	100.0	46.5	100.0
1983	176.1	100.0	104.7	100.0	48.9	100.0
1985	190.2	100.0	115.2	100.0	55.9	100.0
1987	195.9	100.0	144.0	100.0	66.5	100.0
1989	206.6	100.0	151.6	100.0	72.2	100.0
1991	210.6	100.0	156.6	100.0	73.9	100.0
1993	213.8	100.0	150.1	100.0	80.2	100.0
1995	217.5	100.0	153.5	100.0	83.0	100.0
1997	232.5	100.0	164.7	100.0	88.6	100.0
1999	240.2	100.0	168.1	100.0	91.4	100.0
Full-time faculty						
1973	103.3	87.6	72.0	87.5	19.8	71.3
1975	116.4	86.8	78.9	87.1	21.4	69.3
1977	125.6	86.4	71.6	84.3	25.8	69.8
1979	131.2	84.5	74.1	82.3	28.1	68.0
1981	141.9	85.0	83.8	83.2	31.8	68.5
1983	148.4	84.3	86.9	83.0	33.6	68.8
1985	156.9	82.5	95.1	82.6	39.5	70.6
1987	164.4	83.9	121.4	84.3	48.6	73.0
1989	169.8	82.2	125.8	83.0	51.6	71.5
1991	173.1	82.2	131.4	84.0	53.8	72.8
1993	172.4	80.7	121.7	81.1	56.9	70.9
1995	171.4	78.8	121.7	79.2	56.6	68.1
1997	178.4	76.7	127.0	77.1	58.0	65.5
1999	184.0	76.6	129.2	76.8	60.4	66.1
Postdoctorates						
1973	4.2	3.5	4.0	4.9	3.8	13.8
1975	6.2	4.6	5.9	6.5	5.7	18.4
1977	7.6	5.2	7.1	8.4	6.8	18.4
1979	8.1	5.2	7.4	8.2	6.9	16.8
1981	8.5	5.1	8.0	8.0	7.7	16.6
1983	8.3	4.7	7.4	7.1	7.1	14.6
1985	8.7	4.6	7.8	6.8	7.5	13.4
1987	9.3	4.8	8.9	6.2	8.4	12.6
1989	11.5	5.6	10.8	7.1	10.3	14.2
1991	9.9	4.7	9.4	6.0	9.2	12.4
1993	13.3	6.2	13.3	8.9	12.7	15.8
1995	16.8	7.7	16.1	10.5	15.1	18.2
1997	18.9	8.1	18.0	10.9	16.7	18.9
1999	18.5	7.7	17.9	10.6	16.6	18.2
Other						
1973	10.5	6.4	4.6	5.6	3.2	11.3
1975	11.5	5.8	4.3	4.7	2.9	9.3
1977	12.2	5.5	4.6	5.4	3.2	8.7
1979	15.9	9.4	7.9	8.8	5.8	14.1
1981	16.6	9.4	8.4	8.4	6.7	14.3
1983	19.4	9.2	9.0	8.6	7.1	14.4
1985	24.6	12.0	11.5	10.0	8.5	15.2
1987	22.1	10.6	12.9	9.0	9.0	13.6
1989	25.4	11.4	14.0	9.3	9.7	13.5
1991	27.6	11.3	13.7	8.8	9.6	13.1
1993	28.1	13.1	15.1	10.0	10.7	13.3
1995	29.4	13.5	15.7	10.2	11.4	13.7
1997	35.3	15.2	19.8	12.0	13.8	15.6
1999	37.5	15.6	21.0	12.5	14.3	15.7

NOTE: Headcounts are the sum of respondents for whom research is either the primary or secondary work activity. Foreign-earned doctorates are excluded.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients.

Appendix table 5-37.

Estimates of academic doctoral researchers and graduate research assistants by field: 1973–99

Year	Employment		Researcher headcount		Research is primary activity		Graduate research assistants	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
S&E total								
1973	118.0	100	82.3	100	27.8	100	35.9	100
1975	134.1	100	90.6	100	30.8	100	40.0	100
1977	145.4	100	85.0	100	37.0	100	43.7	100
1979	155.3	100	90.0	100	41.3	100	49.0	100
1981	167.1	100	100.7	100	46.5	100	52.7	100
1983	176.1	100	104.7	100	48.9	100	54.9	100
1985	190.2	100	115.2	100	55.9	100	61.0	100
1987	195.9	100	144.0	100	66.5	100	70.2	100
1989	206.6	100	151.6	100	72.2	100	79.1	100
1991	210.6	100	156.6	100	73.9	100	85.2	100
1993	213.8	100	150.1	100	80.2	100	90.2	100
1995	217.5	100	153.5	100	83.0	100	89.9	100
1997	232.5	100	164.7	100	88.6	100	88.0	100
1999	240.2	100	168.1	100	91.4	100	91.3	100
Physical sciences								
1973	22.1	18.7	16.3	19.8	5.9	21.3	6.3	17.5
1975	23.6	17.6	16.9	18.7	6.4	20.8	6.4	16.1
1977	25.0	17.2	16.3	19.2	7.9	21.3	6.8	15.6
1979	24.6	15.9	15.4	17.1	7.5	18.3	7.8	15.9
1981	25.3	15.2	16.3	16.2	8.0	17.1	8.6	16.3
1983	25.1	14.3	16.1	15.3	7.7	15.9	9.1	16.7
1985	27.0	14.2	17.7	15.4	9.4	16.8	10.3	16.9
1987	27.2	13.9	20.3	14.1	10.2	15.3	11.6	16.5
1989	27.7	13.4	20.8	13.7	10.9	15.1	12.4	15.7
1991	27.7	13.1	20.8	13.3	10.6	14.4	12.2	14.4
1993	28.6	13.4	20.0	13.3	12.0	15.0	12.3	13.6
1995	29.4	13.5	20.6	13.4	12.6	15.2	11.8	13.1
1997	30.2	13.0	21.8	13.2	12.7	14.4	11.3	12.8
1999	30.9	12.9	21.6	12.8	12.2	13.3	11.3	12.3
Mathematics								
1973	9.7	8.2	6.8	8.3	1.5	5.4	0.7	1.9
1975	11.0	8.2	7.5	8.2	1.5	4.7	0.6	1.6
1977	11.7	8.0	6.8	8.0	1.8	4.9	0.8	1.8
1979	12.2	7.9	6.9	7.7	2.1	5.0	0.8	1.7
1981	12.4	7.4	6.8	6.8	1.9	4.2	0.8	1.4
1983	12.9	7.3	7.2	6.6	2.0	4.0	0.8	1.5
1985	13.6	7.1	7.6	6.6	2.7	4.8	1.0	1.6
1987	13.8	7.1	9.7	6.7	3.2	4.7	1.1	1.6
1989	14.5	7.0	10.2	6.8	3.5	4.8	1.3	1.6
1991	15.2	7.2	10.7	6.9	3.5	4.8	1.4	1.6
1993	15.5	7.2	9.5	6.3	3.4	4.2	1.4	1.6
1995	14.6	6.7	9.4	6.1	3.3	3.9	1.5	1.6
1997	15.6	6.7	10.1	6.2	3.5	4.0	1.4	1.6
1999	15.2	6.3	9.9	5.9	2.9	3.2	1.3	1.4
Computer sciences								
1973	NA	NA	NA	NA	NA	NA	0.7	1.8
1975	NA	NA	NA	NA	NA	NA	0.7	1.9
1977	NA	NA	NA	NA	NA	NA	0.7	1.7
1979	0.1	0.1	0.1	0.1	0.0	0.1	0.8	1.7
1981	0.3	0.2	0.3	0.3	0.1	0.2	1.1	2.1
1983	0.5	0.3	0.4	0.3	0.2	0.4	1.4	2.5
1985	0.8	0.4	0.6	0.5	0.4	0.7	2.1	3.4
1987	1.1	0.5	1.0	0.7	0.7	1.0	2.8	4.0
1989	1.5	0.7	1.3	0.9	0.8	1.1	3.3	4.2
1991	2.0	0.9	1.7	1.1	1.1	1.4	3.6	4.2
1993	2.5	1.2	2.0	1.3	0.9	1.1	3.8	4.2
1995	3.1	1.4	2.4	1.6	1.0	1.3	3.9	4.4
1997	3.3	1.4	2.4	1.5	1.1	1.2	4.0	4.6
1999	3.7	1.5	2.6	1.6	1.1	1.2	4.9	5.4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-37.

Estimates of academic doctoral researchers and graduate research assistants by field: 1973–99

Year	Employment		Researcher headcount		Research is primary activity		Graduate research assistants	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Earth, atmospheric, and ocean sciences								
1973	3.4	2.9	2.5	3.0	0.7	2.5	2.6	7.1
1975	3.9	2.9	2.8	3.1	0.8	2.7	2.8	7.1
1977	4.2	2.9	2.9	3.4	1.0	2.7	3.2	7.4
1979	4.2	2.7	2.7	3.0	1.0	2.4	3.6	7.3
1981	4.6	2.7	3.2	3.2	1.4	2.9	3.5	6.6
1983	4.8	2.7	3.3	3.1	1.5	3.0	3.5	6.4
1985	5.2	2.8	3.7	3.2	1.6	2.9	3.7	6.1
1987	5.6	2.8	4.6	3.2	2.1	3.2	3.6	5.2
1989	5.9	2.8	4.9	3.2	2.4	3.3	4.2	5.2
1991	6.0	2.9	5.1	3.3	2.5	3.4	4.4	5.2
1993	6.4	3.0	5.0	3.3	2.7	3.4	4.7	5.2
1995	6.4	3.0	5.1	3.3	2.6	3.1	4.7	5.2
1997	7.3	3.2	5.6	3.4	2.9	3.2	4.3	4.9
1999	7.8	3.2	5.6	3.4	2.9	3.2	4.3	4.7
Life sciences								
1973	34.9	29.5	26.0	31.6	12.8	46.0	9.5	26.3
1975	39.4	29.4	29.0	32.0	14.5	47.0	11.3	28.3
1977	42.6	29.3	28.7	33.7	16.6	44.7	13.1	30.0
1979	47.0	30.3	32.1	35.6	19.7	47.6	15.4	31.5
1981	51.3	30.7	37.1	36.8	23.2	49.9	16.3	31.0
1983	54.8	31.1	38.3	36.6	24.3	49.7	16.5	30.0
1985	58.7	30.8	41.4	35.9	27.1	48.4	17.9	29.3
1987	61.2	31.3	48.8	33.9	31.5	47.3	20.2	28.8
1989	64.8	31.3	51.8	34.1	33.8	46.7	23.2	29.3
1991	66.9	31.8	53.3	34.1	34.5	46.7	25.8	30.3
1993	68.2	31.9	51.8	34.5	36.0	44.9	28.0	31.1
1995	71.6	32.9	53.8	35.1	37.7	45.3	29.3	32.5
1997	77.3	33.2	57.9	35.2	40.5	45.7	28.6	32.5
1999	81.9	34.1	60.8	36.2	43.2	47.2	29.0	31.7
Psychology								
1973	12.2	10.4	7.3	8.9	2.0	7.3	1.9	5.4
1975	14.8	11.0	8.5	9.4	2.2	7.1	2.2	5.5
1977	16.2	11.1	7.7	9.1	2.8	7.5	2.3	5.3
1979	17.7	11.4	8.3	9.2	3.4	8.3	2.5	5.2
1981	20.1	12.0	9.9	9.8	4.1	8.8	2.9	5.5
1983	21.0	11.9	10.5	10.0	4.4	8.9	3.0	5.4
1985	23.1	12.1	10.7	9.3	4.6	8.2	3.1	5.0
1987	23.7	12.1	14.3	9.9	5.2	7.8	3.2	4.6
1989	25.0	12.1	14.3	9.5	5.9	8.2	3.8	4.9
1991	25.2	12.0	15.7	10.0	6.2	8.4	4.2	5.0
1993	25.0	11.7	14.9	9.9	6.7	8.3	4.6	5.1
1995	26.1	12.0	15.6	10.1	7.4	8.9	4.6	5.1
1997	27.3	11.7	16.1	9.8	8.0	9.0	4.8	5.4
1999	29.0	12.1	17.2	10.2	8.6	9.5	4.8	5.3
Social sciences								
1973	23.4	19.8	14.3	17.4	2.8	10.2	4.0	11.1
1975	28.0	20.9	16.9	18.6	3.2	10.2	4.8	12
1977	31.1	21.4	13.8	16.2	4.1	11.1	4.9	11.2
1979	33.6	21.6	14.7	16.3	4.2	10.1	5.2	10.6
1981	36.9	22.1	17.6	17.5	4.5	9.7	5.2	9.8
1983	38.8	22.0	17.8	17.0	4.9	10.1	5.0	9.2
1985	41.9	22.0	20.9	18.2	5.7	10.2	5.1	8.3
1987	42.1	21.5	28.5	19.8	7.5	11.3	5.5	7.8
1989	44.5	21.5	30.5	20.1	8.2	11.3	6.2	7.9
1991	44.8	21.3	31.1	19.8	8.4	11.3	6.8	8.0
1993	44.4	20.8	29.3	19.5	10.7	13.4	7.4	8.2
1995	42.5	19.5	28.1	18.3	9.8	11.8	7.2	8.0
1997	44.9	19.3	29.8	18.1	9.8	11.1	6.7	7.7
1999	46.2	19.2	30.9	18.4	11.1	12.1	7.2	7.9

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-37.

Estimates of academic doctoral researchers and graduate research assistants by field: 1973–99

Year	Employment		Researcher headcount		Research is primary activity		Graduate research assistants	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Engineering								
1973	12.4	10.5	9.0	11.0	2.1	7.4	10.4	28.9
1975	13.4	10.0	9.0	10.0	2.3	7.5	11.0	27.5
1977	14.8	10.1	8.9	10.5	2.9	7.9	11.8	27.1
1979	15.8	10.2	9.8	10.9	3.4	8.2	12.8	26.2
1981	16.1	9.7	9.5	9.5	3.3	7.2	14.4	27.3
1983	18.1	10.3	11.2	10.7	3.9	7.9	15.5	28.3
1985	19.9	10.5	12.5	10.8	4.4	7.9	17.9	29.4
1987	21.2	10.8	16.8	11.6	6.2	9.3	22.2	31.6
1989	22.8	11.0	17.6	11.6	6.9	9.5	24.6	31.1
1991	22.8	10.8	18.2	11.6	7.2	9.7	26.8	31.4
1993	23.1	10.8	17.5	11.7	7.9	9.8	27.9	31.0
1995	23.8	10.9	18.5	12.1	8.7	10.5	27.0	30.1
1997	26.6	11.4	20.9	12.7	10.1	11.4	26.9	30.6
1999	25.5	10.6	19.4	11.6	9.4	10.3	28.7	31.4

NA = not available

NOTE: Headcounts are the sum of respondents for whom research is either the primary or secondary work activity. Graduate research assistants are full-time students with research assistantships as their primary mechanism of support. Foreign-earned doctorates are excluded.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients and Survey of Graduate Students and Postdoctorates in Science and Engineering.

See text table 5-12 in Volume 1.

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Appendix table 5-38.

Academic doctoral scientists and engineers with Federal support, by field of degree: 1973–99
 (Percentages)

Year	Total employed	Research is primary activity	Research is secondary activity	Full-time faculty	Full-time other	Post-doctorates
S&E total						
1973	46.9	81.5	40.4	44.3	70.5	90.3
1975	42.2	79.0	35.6	39.6	58.8	86.3
1977	41.6	75.4	37.5	38.2	68.1	86.0
1979	39.9	75.2	35.3	36.2	58.3	82.1
1981	42.8	80.6	35.3	38.8	58.5	86.3
1983	44.3	79.9	40.5	41.7	59.4	82.2
1985	37.4	73.5	28.9	34.3	49.8	78.5
1987	48.2	79.9	38.7	45.6	60.6	82.1
1989	49.4	79.8	40.7	46.6	60.9	83.5
1991	50.3	80.7	40.0	48.0	58.8	84.5
1993	36.7	67.2	23.9	32.9	42.5	83.1
1995	39.4	69.1	27.5	35.7	43.1	80.1
1997	38.6	66.9	26.4	34.7	47.0	74.1
1999	46.1	73.9	36.6	43.1	49.9	80.3
Physical sciences						
1973	50.1	86.3	43.5	44.4	75.4	92.4
1975	45.2	82.4	39.4	39.3	64.1	90.2
1977	46.2	79.2	39.2	39.9	75.9	89.4
1979	44.1	79.4	37.7	38.2	72.4	81.9
1981	50.4	88.9	42.5	44.6	70.3	90.2
1983	50.9	84.7	49.3	46.5	72.1	87.3
1985	43.2	79.5	34.4	37.4	66.1	84.4
1987	54.6	86.2	48.9	49.9	72.6	90.5
1989	58.2	87.3	52.6	53.5	72.1	86.8
1991	56.6	88.3	49.5	52.9	72.0	87.6
1993	45.5	75.3	35.4	37.7	61.1	87.1
1995	48.2	77.4	38.3	41.6	52.8	84.6
1997	46.3	75.6	34.8	39.2	63.8	80.4
1999	55.7	83.0	53.1	50.4	68.8	82.5
Mathematics						
1973	28.8	56.6	28.8	28.7	47.2	48.8
1975	19.1	50.1	18.2	18.8	33.5	35.8
1977	19.0	42.3	20.4	18.0	46.9	55.1
1979	21.7	44.0	20.8	20.4	54.6	43.2
1981	21.3	52.7	21.6	21.0	30.1	56.3
1983	30.1	71.0	32.6	29.9	43.4	66.3
1985	21.5	51.5	19.8	21.4	29.1	48.5
1987	31.1	66.8	23.8	30.4	47.8	34.4
1989	33.5	68.1	28.4	32.8	52.8	53.4
1991	34.5	74.5	26.3	34.0	67.2	80.4
1993	18.8	40.7	16.5	18.3	40.6	—
1995	22.3	45.9	17.0	21.1	34.6	45.3
1997	20.9	48.2	15.5	19.4	43.9	35.6
1999	29.1	60.6	25.4	28.3	38.4	54.7
Computer sciences						
1973	NA	NA	NA	NA	NA	NA
1975	NA	NA	NA	NA	NA	NA
1977	NA	NA	NA	NA	NA	NA
1979	34.8	58.3	23.3	25.0	—	57.1
1981	29.7	19.4	35.8	26.6	25.0	100.0
1983	44.6	84.6	30.1	38.1	67.9	100.0
1985	45.0	57.2	19.7	38.0	80.6	0.0
1987	61.7	66.3	58.7	58.1	79.7	88.2
1989	52.4	74.9	31.4	52.8	47.1	100.0
1991	49.4	71.2	27.7	48.2	67.7	—
1993	39.9	64.7	29.0	37.7	59.1	100.0
1995	43.2	75.8	28.6	40.7	62.9	78.0
1997	41.1	59.4	43.3	38.8	63.1	97.2
1999	55.6	85.0	49.5	54.1	74.9	100.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-38.

Academic doctoral scientists and engineers with Federal support, by field of degree: 1973–99
 (Percentages)

Year	Total employed	Research is primary activity	Research is secondary activity	Full-time faculty	Full-time other	Post-doctorates
Earth, atmospheric, and ocean sciences						
1973	47.2	91.3	40.8	44.5	69.7	87.5
1975	46.0	82.0	41.4	43.0	79.9	75.0
1977	42.7	82.0	37.9	37.8	80.3	95.2
1979	45.4	78.4	46.3	40.0	75.2	96.9
1981	50.2	89.0	41.3	45.1	68.6	91.9
1983	54.5	86.3	47.8	50.3	78.9	90.7
1985	51.1	85.7	42.0	44.8	78.4	96.6
1987	60.2	88.4	49.2	54.6	79.5	91.7
1989	63.8	90.4	52.9	60.2	80.9	90.6
1991	66.2	89.9	55.5	61.4	90.7	73.4
1993	51.2	81.9	37.1	45.5	67.9	83.3
1995	54.3	85.7	38.9	48.6	72.0	91.0
1997	58.0	84.2	41.2	52.3	71.0	85.8
1999	63.3	79.8	63.2	61.7	74.5	74.3
Life sciences						
1973	62.2	86.2	51.3	59.8	76.2	92.4
1975	58.9	85.0	47.4	56.4	70.9	87.7
1977	58.1	83.0	50.1	54.9	72.1	88.4
1979	55.3	82.2	44.2	51.4	64.8	84.6
1981	59.6	85.4	45.9	55.6	68.5	86.0
1983	60.0	84.6	51.4	57.8	68.5	82.6
1985	53.5	80.0	39.2	50.5	58.4	78.3
1987	65.3	87.0	50.6	63.4	71.0	82.1
1989	65.1	86.7	50.9	62.1	74.1	86.8
1991	65.5	86.5	50.8	63.7	67.2	84.4
1993	52.2	76.2	34.8	48.6	45.8	84.1
1995	52.5	75.3	36.4	49.0	46.3	81.9
1997	51.0	73.1	34.8	47.6	46.2	77.7
1999	57.9	79.9	45.1	55.1	49.9	82.6
Psychology						
1973	40.0	75.7	37.7	38.8	54.1	89.4
1975	36.1	70.1	34.0	34.1	41.6	86.4
1977	33.2	70.2	29.0	30.6	65.4	82.5
1979	32.6	72.5	24.9	28.3	46.3	86.8
1981	32.7	77.3	23.8	27.5	52.3	92.0
1983	30.1	70.4	26.2	27.3	40.3	84.2
1985	25.9	66.8	22.2	23.6	32.7	70.8
1987	31.2	70.5	23.9	28.3	37.1	88.1
1989	35.5	73.0	29.2	34.0	39.6	66.3
1991	34.7	70.8	27.0	32.9	36.3	95.8
1993	25.7	63.8	15.9	25.2	23.8	71.7
1995	27.6	62.4	19.0	25.1	30.7	71.4
1997	27.4	65.0	16.7	24.9	28.3	71.8
1999	32.9	68.2	24.8	31.5	30.4	71.8
Social sciences						
1973	27.1	64.3	23.1	26.7	48.2	58.5
1975	23.7	61.1	20.3	23.7	31.6	54.6
1977	23.3	51.4	23.4	22.6	35.3	54.7
1979	20.4	53.6	21.5	19.0	37.3	84.9
1981	21.8	53.8	18.6	21.2	32.7	47.9
1983	23.7	55.8	24.3	22.5	34.0	64.6
1985	17.2	44.5	14.9	16.2	26.6	54.7
1987	27.2	50.3	24.9	27.1	36.2	27.4
1989	27.7	49.8	25.8	27.4	33.8	57.6
1991	28.4	51.2	25.4	27.8	32.7	52.5
1993	14.2	33.4	8.3	13.4	22.1	88.1
1995	16.1	37.2	12.2	15.4	22.6	68.5
1997	15.2	30.1	11.6	14.8	22.7	33.9
1999	22.9	44.3	18.0	22.5	29.3	65.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-38.

Academic doctoral scientists and engineers with Federal support, by field of degree: 1973–99
 (Percentages)

Year	Total employed	Research is primary activity	Research is secondary activity	Full-time faculty	Full-time other	Post-doctorates
Engineering						
1973	55.5	81.9	54.2	54.6	83.1	84.7
1975	50.6	81.4	50.5	49.9	67.3	84.3
1977	51.1	78.0	53.7	49.3	86.6	74.7
1979	49.1	72.4	52.8	49.5	53.0	51.1
1981	51.0	80.2	56.8	49.8	60.7	98.9
1983	54.7	83.9	54.4	54.7	63.1	82.7
1985	43.0	74.5	38.0	42.2	44.3	91.4
1987	57.1	82.0	54.8	56.0	76.4	74.8
1989	56.3	78.1	57.1	55.2	71.2	76.0
1991	63.2	86.5	58.9	62.9	66.8	90.0
1993	42.6	69.4	34.3	40.9	59.5	65.7
1995	49.9	74.5	43.1	48.4	56.7	72.7
1997	49.7	70.8	41.0	46.4	67.9	62.1
1999	56.9	75.7	51.0	55.2	64.2	80.4

— = Too few cases; NA = not available

NOTES: 1985 and 1993–97 are not comparable to the other years and underestimate the degree of Federal support by asking whether work performed during the week of April 15 was supported by the Government. In other years, the question pertains to work conducted over the course of a year. Italics are used to highlight noncomparable values. Foreign-earned doctorates are excluded.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients.

See text table 5-14 in Volume 1.

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Appendix table 5-39.

Recent doctorate holders in academia with Federal support, by field: 1973–99
 (Percentages)

Year	One to three years since Ph.D.				Four to seven years since Ph.D.			
	Total employed	Full-time faculty	Other full-time	Postdoc position	Total employed	Full-time faculty	Other full-time	Postdoc position
S&E total								
1973	47.2	35.5	77.8	89.8	47.3	45.0	76.3	93.4
1975	44.2	31.1	58.3	87.8	42.5	40.0	66.2	83.2
1977	44.5	28.8	61.2	87.0	42.2	37.8	71.6	85.3
1979	47.2	29.6	58.9	86.6	43.0	37.4	67.3	83.1
1981	51.0	30.8	63.1	87.9	46.5	41.2	64.8	86.9
1983	50.2	33.7	59.0	86.1	50.1	45.3	68.1	84.8
1985	43.2	23.9	59.3	79.1	42.4	36.2	63.3	81.0
1987	53.3	36.7	56.1	82.0	54.8	49.7	71.6	84.2
1989	57.2	38.7	58.7	84.7	57.8	53.5	70.0	89.1
1991	53.6	38.3	56.6	83.8	57.4	53.4	66.6	88.7
1993	43.5	20.8	43.7	80.7	41.1	34.0	46.8	87.3
1995	47.0	23.2	40.1	78.5	43.9	36.1	52.0	86.0
1997	45.3	21.0	42.4	74.1	41.9	33.7	49.6	78.5
1999	52.8	28.8	45.5	79.5	47.4	41.4	46.6	83.3
Physical sciences								
1973	61.6	33.6	78.9	90.9	47.6	42.2	82.9	99.2
1975	64.1	27.9	60.7	93.2	43.8	36.6	77.3	85.1
1977	63.2	28.9	95.7	88.5	51.6	40.5	77.5	92.4
1979	59.1	25.5	73.7	84.7	52.0	39.0	72.1	91.7
1981	69.3	25.2	94.3	88.1	57.9	49.4	84.5	97.9
1983	70.4	33.8	82.7	88.2	66.2	56.3	85.3	84.8
1985	64.3	18.7	86.6	84.6	50.8	35.7	78.7	91.4
1987	80.9	66.7	69.9	90.2	68.7	56.0	97.1	93.1
1989	77.9	49.2	82.1	88.0	72.4	61.9	89.0	90.6
1991	69.9	44.1	78.8	87.2	67.2	55.1	88.5	100.0
1993	63.1	21.3	64.9	84.5	58.2	43.9	70.0	94.5
1995	62.8	21.0	41.9	84.1	53.9	37.8	60.2	86.7
1997	64.2	30.0	71.4	77.7	53.4	41.2	67.9	96.5
1999	68.0	39.3	69.9	80.5	57.0	46.7	65.5	89.4
Mathematics								
1973	18.9	17.6	77.4	38.7	31.7	32.0	0.0	100.0
1975	14.5	13.0	37.6	28.3	18.9	18.5	0.0	57.9
1977	16.2	12.2	45.9	56.4	19.2	17.6	82.0	52.2
1979	24.8	22.5	52.9	42.5	32.3	30.2	64.9	46.9
1981	10.8	9.5	0.0	44.1	29.7	27.6	62.7	81.5
1983	31.8	29.8	7.1	73.4	39.8	39.8	51.3	100.0
1985	14.7	14.1	—	34.6	27.0	26.8	26.7	100.0
1987	15.6	7.4	81.8	37.6	34.9	35.5	7.3	10.3
1989	29.1	24.9	53.8	52.4	39.0	39.1	78.6	100.0
1991	39.8	35.8	54.9	80.4	28.3	28.6	40.9	—
1993	15.7	14.8	0.0	100.0	15.2	14.0	100.0	—
1995	17.7	13.4	0.0	40.0	25.6	19.6	42.4	70.6
1997	14.9	3.5	29.1	32.9	16.7	14.9	0.0	42.2
1999	36.4	24.0	0.0	58.7	32.2	33.5	0.0	47.2
Computer sciences								
1973	NA	NA	NA	NA	NA	NA	NA	NA
1975	NA	NA	NA	NA	NA	NA	NA	NA
1977	NA	NA	NA	NA	NA	NA	NA	NA
1979	34.8	25.0	—	57.1	—	—	—	—
1981	27.7	24.1	25.0	100.0	52.4	52.4	—	—
1983	45.7	35.1	60.0	100.0	43.5	40.4	92.3	—
1985	54.1	46.4	77.2	0.0	36.7	31.0	100.0	—
1987	47.2	46.3	42.0	100.0	73.2	66.3	100.0	0.0
1989	33.0	29.3	50.0	100.0	70.8	78.0	35.7	100.0
1991	23.1	23.1	25.1	—	66.2	63.9	100.0	100.0
1993	44.7	39.5	100.0	100.0	30.7	30.9	27.3	100.0
1995	38.2	31.4	61.1	75.9	38.1	38.3	23.9	—
1997	40.5	29.7	74.3	97.0	40.4	37.7	75.6	—
1999	59.7	50.6	77.5	100.0	56.6	56.5	85.9	—

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-39.

Recent doctorate holders in academia with Federal support, by field: 1973–99
 (Percentages)

Year	One to three years since Ph.D.				Four to seven years since Ph.D.			
	Total employed	Full-time faculty	Other full-time	Postdoc position	Total employed	Full-time faculty	Other full-time	Postdoc position
Earth, atmospheric, and ocean sciences								
1973	55.3	45.9	87.5	87.1	56.4	53.7	87.3	100.0
1975	50.7	38.4	85.3	74.2	54.0	49.8	97.0	100.0
1977	44.3	22.5	60.5	94.4	46.9	38.3	82.1	100.0
1979	67.2	41.3	97.3	96.7	49.6	43.1	72.3	100.0
1981	66.1	43.2	79.7	100.0	57.2	53.3	72.7	0.0
1983	61.8	36.7	75.7	92.8	64.5	59.5	100.0	66.7
1985	56.0	33.4	83.9	96.4	59.6	50.6	81.2	100.0
1987	64.2	42.3	87.9	89.6	71.1	61.9	88.9	100.0
1989	70.4	52.8	88.5	90.1	81.2	78.0	92.9	93.8
1991	76.0	61.7	100.0	77.4	76.6	75.3	100.0	64.1
1993	68.2	33.0	97.8	74.2	59.9	50.2	72.6	100.0
1995	65.4	35.8	87.4	88.0	66.4	58.9	86.2	100.0
1997	67.3	35.0	74.7	94.2	57.1	49.4	70.7	69.4
1999	61.7	42.9	89.7	79.8	65.3	62.7	75.6	55.5
Life sciences								
1973	64.6	51.4	83.2	92.9	62.9	60.4	80.3	90.6
1975	61.8	46.4	72.5	87.6	60.1	57.6	76.2	87.5
1977	61.6	38.1	70.4	88.9	59.6	56.6	73.3	90.2
1979	65.9	40.6	75.8	85.9	57.3	51.4	76.5	84.2
1981	71.8	51.7	76.5	88.1	64.0	58.8	70.8	85.7
1983	68.2	52.8	65.1	84.7	67.1	64.5	72.6	83.7
1985	59.6	34.1	67.2	78.9	61.1	55.6	72.3	81.7
1987	70.2	53.5	73.8	82.1	71.4	68.3	81.0	83.0
1989	74.5	50.2	79.3	89.1	71.9	67.5	79.1	89.3
1991	68.1	49.9	60.0	83.0	70.6	66.8	79.2	86.3
1993	61.2	32.2	44.8	81.9	55.7	46.4	52.0	86.7
1995	58.5	30.3	35.3	80.3	54.0	43.9	47.4	87.4
1997	58.3	23.0	42.2	77.5	52.3	42.4	48.4	78.8
1999	65.0	35.0	46.2	82.4	57.2	47.2	49.3	83.0
Psychology								
1973	37.5	31.4	60.8	95.3	40.3	39.3	63.9	88.2
1975	35.0	25.5	53.7	88.5	35.3	34.9	32.8	71.2
1977	35.3	26.8	71.7	86.0	31.5	27.9	60.5	73.0
1979	35.2	22.5	22.2	95.5	39.3	31.4	76.5	87.6
1981	46.5	33.2	41.6	93.4	34.7	28.6	54.5	88.2
1983	31.2	19.8	34.2	89.3	32.3	28.2	37.1	87.2
1985	30.6	15.6	44.5	70.1	29.2	26.2	38.7	72.5
1987	37.5	28.5	28.8	82.7	33.2	25.6	40.3	97.9
1989	41.7	34.6	36.1	64.9	36.1	36.7	33.1	63.1
1991	35.9	23.9	24.3	100.0	38.8	38.6	24.8	86.9
1993	21.6	12.0	27.5	61.6	23.2	24.6	15.5	48.2
1995	33.5	17.5	40.6	63.5	26.1	21.8	36.0	82.1
1997	34.5	24.2	19.0	70.9	29.5	22.3	36.4	77.3
1999	33.4	22.4	29.9	63.6	35.6	34.7	23.8	100.0
Social sciences								
1973	26.8	25.7	68.0	23.9	30.8	30.5	40.3	100.0
1975	23.1	22.5	29.0	61.7	26.2	26.2	42.4	39.2
1977	24.8	24.2	12.3	61.4	24.6	23.2	56.3	48.0
1979	26.6	22.8	37.6	97.5	20.8	19.2	52.2	70.8
1981	20.4	16.3	48.7	56.0	24.3	24.3	25.2	60.0
1983	28.2	23.6	49.0	77.9	28.1	23.6	57.5	93.8
1985	15.6	12.3	27.8	44.4	19.3	15.7	51.0	41.0
1987	22.5	20.9	34.5	21.4	29.9	27.7	54.0	0.0
1989	25.6	24.7	24.3	41.9	33.2	31.6	51.4	83.9
1991	21.7	19.5	38.8	31.7	36.6	33.8	44.2	100.0
1993	11.2	7.2	25.4	88.2	14.9	14.4	21.9	100.0
1995	15.9	10.7	28.8	80.8	17.8	16.0	41.8	49.8
1997	14.1	10.9	26.8	33.7	17.4	15.6	26.3	57.7
1999	21.1	15.2	26.1	77.1	22.8	21.7	31.3	48.1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-39.

Recent doctorate holders in academia with Federal support, by field: 1973–99
 (Percentages)

Year	One to three years since Ph.D.				Four to seven years since Ph.D.			
	Total employed	Full-time faculty	Other full-time	Postdoc position	Total employed	Full-time faculty	Other full-time	Postdoc position
Engineering								
1973	53.4	47.8	80.2	87.1	52.6	51.8	92.0	66.7
1975	53.7	48.9	65.8	83.8	54.4	53.1	82.3	100.0
1977	55.2	47.2	84.8	72.9	52.9	52.3	64.8	64.9
1979	55.5	48.5	71.9	99.4	55.1	58.8	33.8	16.9
1981	54.4	43.2	100.0	100.0	65.6	61.9	83.9	100.0
1983	47.1	36.7	58.2	98.3	64.3	62.2	99.0	100.0
1985	43.9	37.8	66.1	94.5	47.6	46.3	66.4	0.0
1987	53.3	43.7	79.2	75.7	65.5	64.2	97.6	100.0
1989	56.0	48.9	71.9	73.3	70.8	68.6	91.8	100.0
1991	66.6	62.1	67.7	89.9	73.2	73.0	79.7	100.0
1993	43.4	32.1	65.1	68.7	51.2	49.4	65.9	70.3
1995	51.1	38.5	50.3	72.6	62.1	60.3	72.5	86.5
1997	50.0	35.5	66.4	66.3	51.3	48.4	62.5	60.5
1999	58.5	40.0	70.9	78.1	55.5	56.4	44.8	94.2

— = Too few cases; NA = not available

NOTE: 1985, 1993–97 are not comparable to the other years and understate the degree of Federal support by asking whether work performed during the week of April 15 was supported by the Government. In other years, the question pertains to work conducted over the course of a year. Italics are used to highlight noncomparable values. Foreign-earned doctorates are excluded.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), Survey of Doctorate Recipients.

See text table 5-14 in Volume I.

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Appendix table 5-40.
Broad and fine fields for publications output data

Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health sciences	Professional
Addictive diseases	Anatomy and morphology	Agriculture and food science	Analytical chemistry	Acoustics	Astronomy and astrophysics	Aerospace technology	Applied mathematics	Behavioral and comparative psychology	Anthropology and archaeology	Gerontology and aging	Communication Education
Allergy	Biochemistry and molecular biology	Botany	Applied chemistry	Applied physics	Earth and planetary science	Chemical engineering	General mathematics	Clinical psychology	Area studies	Health policy and services	Information and library science
Anesthesiology	Biomedicine	Dairy and animal science	General chemistry	Chemical physics	General physics	Civil engineering	Miscellaneous mathematics	Developmental and child psychology	Criminology	Demography	Law
Arthritis and rheumatism	Biophysics	Inorganic and nuclear chemistry	Fluids and plasmas	Miscellaneous physics	Environmental science	Computers	Probability and statistics	Experimental psychology	Economics	Public health	Management and business
Cancer	Biotechnology	Ecology	Organic chemistry	Geology	Meteorology and atmospheric sciences	Electrical and electronics engineering	General psychology	General social sciences	General social sciences	Rehabilitation	Social work
Cardiovascular system	Cell biology, cytology, and histology	Entomology	Physical chemistry	Nuclear and particle physics	Oceanography and limnology	Industrial engineering	Human factors	Geography and regional science	International relations	Social studies of medicine	Miscellaneous professional fields
Dentistry	Embryology	General zoology	Polymers	Optics	Solid state physics	Mechanical engineering	Miscellaneous psychology	Miscellaneous social sciences	Miscellaneous social sciences	Speech/language pathology and audiology	
Dermatology and venereal disease	Genetics and heredity	Marine and hydrobiology				Metals and metallurgy	Psychoanalysis	Social psychology	Planning and urban studies		
Endocrinology	General biomedical research	Miscellaneous biology				Miscellaneous engineering and technology			Political science and public administration		
Environmental and occupational health	Microbiology	Miscellaneous zoology				Nuclear technology			Science studies		
Fertility	Microscopy					Operations research and management			Sociology		
Gastroenterology	Miscellaneous biomedical research										
General and internal medicine	Nutrition and dietetics										
Geriatrics	Parasitology										
Hematology	Physiology										
Immunology	Virology										
Miscellaneous clinical											
Nephrology											
Neurology and neurosurgery											
Obstetrics and gynecology											
Ophthalmology											
Orthopedics											
Otorhinolaryngology											
Pathology											
Pediatrics											
Pharmacology											
Pharmacy											
Psychiatry											
Radiology and nuclear medicine											
Respiratory system											
Surgery											
Tropical medicine											
Urology											
Veterinary medicine											

SOURCE: CHI Research, Inc., Science Indicators database

Science & Engineering Indicators – 2002

Appendix table 5-41.

Number of scientific publications by region and country: 1986–99

Region and country/economy	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Worldwide	462,746	449,888	464,896	478,300	481,213	482,890	502,245	489,009	510,796	515,512	518,959	512,649	523,695	528,643
North America														
Total	199,138	193,320	197,061	201,141	201,591	202,009	203,351	199,600	200,630	200,703	195,222	186,738	184,853	183,211
Canada	20,871	20,735	21,224	21,504	21,613	21,401	22,129	21,589	22,205	21,653	21,403	19,910	19,419	19,685
United States	178,266	172,585	175,837	179,637	179,978	180,608	181,222	178,011	178,425	179,051	173,819	166,829	165,434	163,526
Latin America														
Total	5,583	5,646	5,635	6,155	6,602	6,710	7,326	7,176	7,630	8,415	9,206	10,095	10,971	12,034
Antigua & Barbuda	0	0	1	0	0	0	0	0	0	0	1	0	0	0
Argentina	1,459	1,475	1,428	1,450	1,556	1,427	1,421	1,442	1,607	1,742	1,970	2,119	2,175	2,361
Bahamas	2	2	4	3	1	0	2	1	1	1	1	1	1	1
Barbados	20	19	19	17	15	13	18	14	19	21	10	19	14	15
Belize	1	0	1	2	0	1	2	2	1	3	2	2	4	2
Bolivia	5	11	8	14	17	11	15	23	24	24	18	27	23	33
Brazil	1,777	1,766	1,799	2,065	2,291	2,531	2,958	2,656	2,822	3,134	3,492	3,908	4,513	5,144
Chile	673	624	663	687	792	751	758	786	684	768	806	850	835	879
Colombia	90	88	81	109	118	101	116	113	132	152	173	208	205	207
Costa Rica	44	48	54	55	53	53	61	54	62	63	64	73	63	69
Cuba	56	76	67	88	105	88	118	105	117	136	158	148	186	192
Dominica	0	0	0	0	0	0	0	0	2	0	0	0	1	0
Dominican Republic	9	7	6	6	7	11	5	9	7	6	7	6	6	6
Ecuador	10	13	13	17	20	29	18	13	27	27	29	39	27	20
El Salvador	2	1	5	3	6	2	1	2	3	1	4	2	0	0
Grenada	0	0	0	0	0	0	0	0	2	0	1	1	0	1
Guatemala	19	23	18	15	20	28	25	23	22	17	25	15	15	14
Guyana	5	7	4	4	5	6	8	4	4	6	5	4	5	4
Haiti	5	3	4	2	5	6	1	3	2	2	1	2	2	1
Honduras	4	1	2	5	6	9	3	6	5	6	6	10	9	11
Jamaica	57	89	76	62	56	57	46	53	62	71	56	49	38	44
Mexico	866	933	882	1,010	986	1,041	1,160	1,266	1,402	1,616	1,745	1,915	2,146	2,291
Nicaragua	4	7	10	5	5	8	7	7	4	3	9	11	5	8
Panama	27	38	36	38	44	35	25	35	35	32	26	37	29	37
Paraguay	6	7	7	9	7	4	10	2	3	5	8	4	8	4
Peru	51	50	69	67	75	68	70	61	58	58	64	63	59	56
St. Kitts and Nevis	0	0	0	0	0	0	0	0	0	0	0	0	0	1
St. Lucia	0	0	0	0	0	4	1	5	2	0	1	2	2	1
St. Vincent	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Suriname	0	1	2	5	2	2	2	3	3	2	2	1	3	3
Trinidad-Tobago	48	34	37	52	45	46	52	52	56	49	40	41	42	37
Uruguay	31	33	44	48	56	63	74	76	76	84	100	110	109	144
Venezuela	307	293	292	311	298	314	349	356	386	386	380	429	447	448
West Indies Associated States	4	0	9	9	13	4	2	3	2	2	2	2	2	5
Sub-Saharan Africa														
Total	4,639	4,502	4,504	4,369	4,188	4,191	4,112	3,975	3,854	3,753	3,585	3,510	3,505	3,632
Angola	0	0	1	0	1	2	3	3	2	2	2	1	3	
Benin	0	6	7	5	6	13	8	11	9	12	12	19	20	20
Botswana	24	14	10	20	18	18	19	26	17	26	38	33	32	41

See explanatory notes, if any, and SOURCE at end of tables.

Appendix table 5-41.

Number of scientific publications by region and country: 1986–99

Region and country/economy	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Burkina Faso	14	0	20	15	16	23	19	19	17	15	12	20	25	23
Burundi	4	9	6	10	3	5	6	3	9	11	11	11	3	3
Cameroon	15	22	34	39	46	52	54	66	76	70	50	73	68	61
Cape Verde Islands	0	0	1	0	0	2	0	0	0	0	1	0	0	1
Central African Republic	4	9	9	12	11	5	6	4	3	6	3	5	4	4
Chad Republic	1	0	1	1	0	1	1	2	1	3	1	2	2	2
Comoros	0	0	0	0	0	0	0	1	0	1	0	0	1	0
Congo, Democratic Republic	31	30	38	31	29	21	26	21	19	18	15	15	6	6
Congo, Republic	15	18	14	17	15	14	18	8	10	6	9	8	10	13
Cote Ivoire	46	42	32	26	34	36	37	32	47	33	29	31	45	40
Equatorial Guinea	0	0	0	2	1	0	1	3	1	0	1	0	0	1
Eritrea	0	0	0	0	0	0	0	0	0	2	2	0	5	2
Ethiopia	45	60	65	56	67	90	83	80	81	96	84	103	71	95
Gabon Republic	16	12	20	11	14	14	14	11	14	16	10	16	18	20
Gambia	0	0	0	0	0	0	0	0	22	23	19	25	25	17
Ghana	25	32	35	34	38	45	66	45	63	60	72	78	58	73
Guinea Republic	1	2	2	4	3	3	3	3	2	3	2	2	3	2
Guinea-Bissau	1	0	0	1	1	1	2	3	2	1	3	3	2	6
Kenya	238	232	294	293	250	250	281	325	255	289	251	235	245	252
Lesotho	7	5	7	4	3	5	4	7	5	2	3	2	1	1
Liberia	5	4	4	3	6	7	5	1	1	2	1	1	0	1
Malagasy Republic	10	7	7	13	12	14	8	14	15	14	17	12	15	20
Malawi	21	12	28	24	27	27	15	29	37	40	37	38	29	36
Mali	12	6	12	7	8	8	6	9	13	14	15	12	13	11
Mauritania	3	1	0	2	1	1	0	4	2	2	2	2	2	2
Mauritius	2	1	3	2	8	7	5	8	12	7	6	2	8	16
Mozambique	10	8	8	6	4	8	7	13	7	9	10	9	9	14
Namibia	0	0	0	0	14	11	13	11	17	12	17	7	20	13
Niger	9	15	10	14	19	12	22	21	23	20	18	25	20	21
Nigeria	976	872	883	834	772	683	621	551	420	419	377	405	361	397
Rwanda	8	11	10	14	8	4	12	13	10	6	6	5	2	4
Sao Tome and Principe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Senegal Republic	0	0	0	0	0	0	0	0	72	65	58	58	64	66
Senegambia	69	78	70	76	79	73	85	94	4	0	0	0	0	0
Seychelles	1	2	0	0	0	1	1	1	1	3	6	2	1	2
Sierra Leone	10	12	15	6	9	10	9	5	6	6	11	8	1	3
Somalia	7	8	8	13	9	8	6	3	3	2	0	1	0	0
South Africa	2,653	2,670	2,509	2,437	2,327	2,434	2,298	2,204	2,221	2,120	2,066	1,926	2,008	2,018
Sudan	96	83	92	76	69	66	71	55	48	55	39	44	42	43
Swaziland	2	6	5	8	6	5	9	4	4	4	7	6	6	6
Tanzania	90	73	61	68	66	72	90	86	91	77	100	89	81	92
Togo	6	3	2	6	5	7	5	8	6	7	4	7	7	11
Uganda	23	27	17	15	25	17	25	37	31	40	38	46	47	59
Zambia	44	34	51	44	36	23	40	24	24	38	20	23	24	26
Zimbabwe	98	77	116	121	127	98	111	112	130	101	105	100	104	85

See explanatory notes, if any, and SOURCE at end of tables.

Appendix table 5-41.

Number of scientific publications by region and country: 1986–99

Region and country/economy	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Near East and North Africa														
Total	7,659	7,611	7,842	8,092	7,859	7,638	7,769	8,018	8,294	8,651	8,577	8,764	9,005	9,086
Algeria	81	61	66	70	96	97	114	114	120	141	139	139	150	162
Bahrain	24	19	31	53	46	41	34	35	44	39	39	30	20	29
Djibouti	0	0	1	2	3	1	1	2	1	1	1	0	1	0
Egypt	1,070	1,037	1,130	1,231	1,198	1,361	1,204	1,187	1,268	1,237	1,231	1,108	1,159	1,198
Iran	96	92	86	89	88	120	142	165	220	251	277	332	470	624
Iraq	222	187	225	232	164	81	79	74	67	47	39	35	24	21
Israel	4,989	4,921	4,887	4,936	4,747	4,536	4,807	5,029	5,029	5,269	5,092	5,321	5,211	5,025
Jordan	119	142	164	170	165	140	125	123	134	142	153	177	198	204
Kuwait	226	259	283	312	343	195	87	91	150	151	188	173	215	260
Lebanon	94	66	57	58	29	45	47	52	54	50	56	81	91	100
Libya	43	43	43	41	36	40	33	25	31	28	20	12	18	19
Malta	3	5	3	11	14	8	12	15	13	17	10	17	13	20
Morocco	76	68	105	108	91	121	161	153	175	222	238	271	348	386
North Yemen	7	8	7	12	12	16	10	0	0	0	0	0	0	0
Oman	2	1	11	20	26	31	36	40	42	49	59	53	68	73
Qatar	17	20	30	33	24	35	37	32	36	24	27	20	28	19
Saudi Arabia	487	552	575	553	611	574	600	639	644	687	680	613	602	528
South Yemen	1	2	3	1	2	0	1	0	0	0	0	0	0	0
Syria	15	25	18	28	33	30	48	47	47	47	51	57	41	55
Tunisia	76	83	94	106	101	112	119	86	129	139	146	188	211	237
United Arab Emirates	13	20	23	29	33	55	73	100	87	104	125	127	130	118
Yemen (undifferentiated)	0	0	0	0	0	0	11	4	7	7	10	7	10	10
Western Europe														
Total	143,496	140,423	143,335	149,140	151,254	153,192	163,346	161,481	173,611	176,689	181,657	181,844	187,500	188,548
Albania	0	1	2	11	6	15	8	12	17	17	17	10	13	17
Andorra	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Austria	2,342	2,271	2,254	2,584	2,551	2,596	2,832	2,820	2,873	3,148	3,225	3,432	3,630	3,580
Belgium	3,658	3,588	3,585	3,740	3,885	3,883	4,012	4,023	4,395	4,531	4,887	4,717	4,852	4,896
Bosnia and Herzegovina	0	0	0	0	0	0	0	14	11	5	6	8	13	9
Croatia	0	0	0	0	0	0	0	533	472	514	520	544	495	545
Cyprus	13	16	15	14	17	8	21	20	23	38	49	58	50	46
Denmark	3,636	3,432	3,461	3,625	3,579	3,588	3,835	3,711	4,026	3,946	3,993	3,950	4,083	4,131
Finland	2,831	2,829	2,764	2,862	2,920	3,050	3,182	3,235	3,566	3,655	3,805	3,897	3,800	4,025
France	20,874	20,152	21,281	21,749	21,584	21,591	23,903	23,722	25,704	26,265	26,590	26,509	27,421	27,374
Germany (East)	3,865	3,873	3,748	3,851	3,522	3,309	0	0	0	0	0	0	0	0
Germany	25,654	25,300	25,654	26,940	27,317	27,975	32,832	31,419	33,987	34,442	35,206	36,233	38,044	37,308
Greece	1,158	1,251	1,260	1,471	1,336	1,522	1,627	1,615	1,782	1,874	2,045	2,123	2,306	2,241
Iceland	59	56	69	68	88	98	101	112	119	138	128	127	153	114
Ireland	776	728	788	792	856	847	825	896	1,023	1,054	1,116	1,118	1,273	1,237
Italy	10,114	10,163	11,228	11,935	12,295	12,823	13,911	13,661	15,193	15,660	16,703	16,405	17,081	17,149
Liechtenstein	6	5	7	7	6	8	8	7	13	10	9	10	6	17
Luxembourg	9	10	8	11	17	14	21	19	26	28	16	28	30	29
Macedonia	0	0	0	0	0	0	0	26	26	32	33	49	35	36
Monaco	13	16	9	6	10	9	14	11	15	13	17	13	19	21
Netherlands	8,251	8,192	8,520	9,370	9,585	9,482	10,133	10,224	10,733	10,899	10,834	11,008	10,749	10,441

See explanatory notes, if any, and SOURCE at end of tables.

Appendix table 5-41.

Number of scientific publications by region and country: 1986–99

Region and country/economy	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Norway	2,293	2,185	2,177	2,183	2,324	2,278	2,455	2,377	2,517	2,576	2,515	2,501	2,607	2,598
Portugal	370	378	427	493	557	589	664	726	816	867	952	1,085	1,178	1,508
San Marino	0	0	0	0	1	0	0	0	0	0	0	1	1	0
Slovenia	0	0	0	0	0	0	0	377	413	388	417	517	538	599
Spain	4,871	4,986	5,410	5,885	6,486	6,826	8,347	8,648	9,352	9,870	10,592	11,210	11,591	12,289
Sweden	7,656	7,378	7,536	7,833	7,806	7,679	7,602	7,744	8,011	8,117	8,345	8,219	8,369	8,326
Switzerland	5,488	5,305	5,279	5,355	5,550	5,687	6,089	6,207	6,657	6,603	6,663	6,935	6,917	6,993
Turkey	386	436	501	640	714	797	985	1,076	1,271	1,560	1,962	2,116	2,397	2,761
United Kingdom	38,168	36,682	36,146	36,429	36,671	37,124	38,382	37,796	40,112	39,980	40,502	38,530	39,317	39,711
Vatican City	3	2	1	0	3	1	2	3	1	1	1	2	1	2
Yugoslavia	1,003	1,190	1,207	1,288	1,569	1,394	1,554	450	459	460	510	492	532	546
Eastern Europe and Central Asia														
Total	42,299	39,578	42,675	42,942	41,676	39,802	41,026	33,307	35,538	33,631	32,369	31,688	31,418	30,763
Armenia	0	0	0	0	0	0	0	158	165	167	155	178	152	142
Azerbaijan	0	0	0	0	0	0	0	179	169	134	107	71	81	66
Bulgaria	1,158	1,125	1,122	1,199	1,165	1,110	1,156	1,291	954	882	888	897	828	801
Byelarus	0	0	0	0	0	0	0	600	725	668	551	547	553	564
Czech Republic	0	0	0	0	0	0	0	0	1,963	1,825	2,079	2,024	2,094	2,005
Czechoslovakia	3,127	2,889	2,793	2,941	2,964	2,744	2,946	3,099	83	4	0	0	0	0
Estonia	0	0	0	0	0	0	0	0	164	187	217	219	222	254
Georgia	0	0	0	0	0	0	0	0	150	127	133	108	128	126
Hungary	1,920	1,781	1,711	1,791	1,660	1,696	1,630	1,554	1,607	1,657	1,630	1,717	1,850	1,958
Kazakhstan	0	0	0	0	0	0	0	0	238	178	157	132	119	115
Kyrgyzstan	0	0	0	0	0	0	0	0	26	30	14	13	9	15
Latvia	0	0	0	0	0	0	0	0	175	152	146	158	141	147
Lithuania	0	0	0	0	0	0	0	0	135	176	162	182	198	214
Moldova	0	0	0	0	0	0	0	0	147	155	137	133	111	95
Poland	3,983	3,751	4,053	4,062	3,817	3,671	3,781	3,475	3,735	4,186	4,174	4,019	4,318	4,523
Romania	562	476	387	504	358	376	549	469	645	596	816	751	770	785
Russia	0	0	0	0	0	0	0	0	18,251	20,337	18,512	17,108	17,147	16,352
Slovakia	0	0	0	0	0	0	0	0	0	1,076	1,059	1,070	950	1,025
Tajikistan	0	0	0	0	0	0	0	0	61	61	31	25	29	15
Turkmenistan	0	0	0	0	0	0	0	0	20	9	11	6	7	4
USSR	31,550	29,557	32,611	32,444	31,712	30,204	30,965	120	0	0	0	0	0	0
Ukraine	0	0	0	0	0	0	0	2,729	2,727	2,643	2,479	2,163	2,189	2,194
Uzbekistan	0	0	0	0	0	0	0	268	278	290	336	261	206	236
Asia														
Total	47,712	47,022	51,847	54,178	55,764	57,287	62,712	62,558	67,534	69,684	74,055	75,861	81,674	86,405
Afghanistan	4	2	5	1	0	1	1	0	0	1	0	0	0	0
Bangladesh	124	112	98	98	110	97	134	141	123	156	138	130	122	148
Bhutan	0	1	0	3	1	0	2	2	3	2	0	0	2	1
Brunei	1	1	2	4	2	7	14	4	11	5	12	9	10	20
Cambodia	0	0	0	0	1	0	1	1	1	3	3	3	1	5
China	2,911	3,146	3,989	4,325	4,999	4,986	5,602	5,882	6,093	6,995	7,212	9,081	10,155	11,675
Hong Kong	84	634	621	775	827	783	824	959	1,075	1,372	1,776	2,080	1,863	1,817
India	9,925	9,051	9,030	9,410	8,809	9,008	9,471	8,944	9,186	8,727	8,839	8,439	8,775	9,217
Indonesia	72	66	67	85	103	82	79	93	106	115	122	123	121	142

See explanatory notes, if any, and SOURCE at end of tables.

Appendix table 5-41.

Number of scientific publications by region and country: 1986–99

Region and country/economy	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Japan	31,957	30,920	34,390	35,214	36,191	36,974	40,129	39,310	42,148	42,338	44,735	43,891	46,951	47,826
Laos	0	0	0	0	0	1	1	1	0	2	1	2	5	2
Malaysia	186	192	208	234	225	252	234	272	326	343	333	304	336	416
Maldives Republic	0	0	0	0	0	1	1	0	0	1	2	0	1	3
Mongolia	9	12	13	11	12	14	12	14	12	6	17	13	9	8
Myanmar	8	14	15	9	9	7	13	9	14	13	9	3	5	10
Nepal	18	14	20	18	20	20	25	21	24	35	24	35	34	39
North Korea.....	2	4	7	3	2	3	2	1	0	1	0	0	3	1
Pakistan	161	210	196	230	209	249	243	260	259	282	250	232	250	277
Philippines	151	128	129	145	152	141	135	138	131	134	133	159	146	164
Singapore.....	358	401	413	501	552	561	696	773	924	1,064	1,018	1,164	1,371	1,653
South Korea	516	672	771	1,006	1,118	1,295	1,620	1,919	2,561	3,234	4,029	4,619	5,552	6,675
Sri Lanka	52	94	107	99	102	82	75	69	74	65	73	61	66	84
Taiwan	904	1,067	1,428	1,682	1,993	2,380	3,060	3,394	4,069	4,396	4,893	5,053	5,361	5,655
Thailand	226	235	286	260	270	280	274	290	340	303	337	356	440	470
Vietnam	45	48	53	66	59	64	65	62	54	94	101	106	96	98
Pacific														
Total	12,219	11,785	11,998	12,283	12,281	12,062	12,603	12,896	13,705	13,987	14,288	14,149	14,769	14,964
Australia	10,121	9,831	9,836	10,297	10,082	10,025	10,463	10,753	11,448	11,742	11,954	11,793	12,252	12,525
Fiji	27	25	24	12	14	16	10	27	11	9	7	10	8	13
Kiribati	0	1	0	0	0	1	0	0	0	0	0	0	0	0
Marshall Islands	0	0	0	0	0	0	3	1	1	2	2	3	0	1
Micronesia	0	1	0	0	0	0	1	0	0	7	2	0	0	1
Nauru	0	0	1	0	0	0	0	0	0	0	0	0	0	0
New Zealand	1,994	1,860	2,078	1,913	2,131	1,968	2,074	2,066	2,192	2,181	2,290	2,308	2,469	2,375
Pap	69	59	57	56	48	42	39	40	43	34	32	31	31	36
Solomon Islands	4	1	1	2	2	5	3	2	3	3	0	3	5	6
Tonga	1	0	1	0	0	1	1	0	1	2	0	0	1	1
Tuvalu	0	0	0	0	0	2	0	1	0	0	0	0	1	0
Vanuatu	3	3	1	2	3	1	4	0	2	3	1	1	1	3
Western Samoa	2	4	1	2	2	2	5	4	5	4	0	1	1	3

NOTES: Publication counts are from a 1985 set of journals classified and covered by the Institute of Scientific Information's Science and Social Science Citation Indexes. Article counts are based on fractional assignments; for example, an article with two authors from different countries is counted as one-half of an article for each country. Former U.S.S.R. consists of the present East European and Central Asian countries that were former members. Germany's data are split between former East and West Germany prior to 1992.

SOURCE: Institute for Scientific Information, Science Citation Index and Social Science Citation Index; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

See figure 5-32 in Volume 1.

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Appendix table 5-42.

Per capita output of scientific articles: 1998

(Per million inhabitants)

Country/economy	Number of Publications	Country/economy	Number of Publications
Switzerland	973.40	Brunei	32.38
Sweden	945.44	Bahrain	31.26
Israel	873.87	Oman	29.50
Denmark	770.27	Saudi Arabia	29.01
Finland	737.43	Brazil	27.21
Spain	714.96	Georgia	23.10
Netherlands	684.75	Tunisia	22.61
United Kingdom	665.77	Mexico	22.39
New Zealand	650.98	Moldova	22.13
Canada	640.87	Lebanon	21.62
United States	612.04	Botswana	20.55
Monaco	603.13	Gambia	20.23
Norway	588.20	Venezuela	19.22
Iceland	558.03	Egypt	18.87
Australia	545.72	Costa Rica	17.92
Belgium	475.49	Macedonia	17.61
France	465.97	Cuba	16.79
Germany	463.69	Malaysia	15.16
Austria	449.36	Belize	15.06
Singapore	433.44	Jamaica	14.71
Japan	371.42	St. Lucia	14.47
Ireland	343.59	Seychelles	13.92
Italy	296.60	Morocco	12.54
Slovenia	271.34	Namibia	12.09
Taiwan	244.71	Solomon Islands	11.54
Greece	219.27	Panama	10.60
Czech Republic	203.40	Azerbaijan	10.28
Slovakia	190.15	Tonga	10.10
Hungary	182.91	Fiji	9.87
Liechtenstein	181.25	India	8.96
Estonia	175.03	Zimbabwe	8.89
South Korea	119.58	Uzbekistan	8.58
Portugal	118.18	Kenya	8.36
Kuwait	115.17	China	8.20
Poland	111.67	Suriname	7.77
Russia	111.30	Iran	7.59
Bulgaria	100.28	Kazakhstan	7.34
Chile	95.00	Thailand	7.18
Hong Kong	89.73	Senegal Republic	7.05
Croatia	73.33	Dominica	6.85
Luxembourg	70.96	Papua New Guinea	6.71
Cyprus	66.14	Mauritius	6.64
Lithuania	62.06	Swaziland	6.27
Argentina	60.19	Guyana	5.77
Latvia	60.15	Vanuatu	5.46
Byelarus	54.01	Colombia	5.01
Barbados	51.50	Algeria	5.00
Yugoslavia	50.11	Cameroon	4.78
South Africa	48.49	Albania	3.77
United Arab Emirates	47.76	Congo	3.59
Ukraine	43.53	Sri Lanka	3.51
Jordan	43.30	Kiribati	3.49
Armenia	40.13	Libya	3.41
Turkey	37.78	Bahamas	3.40
Qatar	37.47	Bosnia and Hercegovina	3.37
Malta	35.54	Benin	3.31
Romania	34.22	Côte d'Ivoire	3.13
Uruguay	33.14	Ghana	3.11
Trinidad-Tobago	32.53		

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-42.

Per capita output of scientific articles: 1998

(Per million inhabitants)

Country/economy	Number of Publications	Country/economy	Number of Publications
Kyrgyzstan	3.11	Madagascar	1.01
Nigeria	2.99	Bangladesh	0.97
Bolivia	2.84	Comoros	0.94
Malawi	2.79	Turkmenistan	0.74
Gabon Republic	2.79	Dominican Republic	0.74
Syria	2.67	Mauritania	0.67
Tanzania	2.51	Indonesia	0.59
Tajikistan	2.47	Lesotho	0.63
Zambia	2.44	Mozambique	0.53
Peru	2.38	Yemen	0.45
Burkina Faso	2.34	Burundi	0.38
Uganda	2.25	Guinea Republic	0.35
Ecuador	2.18	Rwanda	0.30
Sao Tome and Principe	2.11	Haiti	0.27
Niger	2.01	Chad Republic	0.27
Bhutan	1.98	Sierra Leone	0.27
Philippines	1.94	North Korea	0.13
Pakistan	1.90	Cambodia	0.12
Togo	1.53	Congo, Democratic Republic	0.11
Honduras	1.51	Myanmar	0.11
Paraguay	1.49	Liberia	0.10
Sudan	1.48	Angola	0.05
Nepal	1.48	Afghanistan	0.01
Guinea-Bissau	1.46	Antigua and Barbuda	0.00
Guatemala	1.37	El Salvador	0.00
Vietnam	1.25	Grenada	0.00
Mali	1.21	St. Kitts and Nevis	0.00
Eritrea	1.16	St. Vincent	0.00
Ethiopia	1.16	Cape Verde Islands	0.00
Nicaragua	1.11	Equatorial Guinea	0.00
Djibouti	1.10	Somalia	0.00
Iraq	1.09	Andorra	0.00
Laos	1.09	Marshall Islands	0.00
Central African Republic	1.06	Micronesia	0.00

NOTES: Article counts (on a per capita basis) are based on fractional assignments; for example, an article with two authors from different countries is counted as one-half of an article for each country. Taiwan's population is from CIA World Factbook, 1998; data for all other countries are from the World Bank.

SOURCE: Institute for Scientific Information, Science and Social Science Citation Indexes; CHI Research, Inc., Science Indicators database; World Bank, World Bank Development Indicators 2000; U.S. Central Intelligence Agency, CIA World Factbook 1998; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986
 (Percentages)

	All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional
Region and country/economy													
(Percentage share)													
Worldwide (1999)													
Total	528,643	29.0	14.7	7.0	12.5	15.3	5.4	6.8	2.0	2.0	2.7	0.9	1.8
North America (1999)													
Total	183,211	31.9	16.9	6.7	7.7	10.1	6.2	6.0	1.8	3.4	4.2	1.5	3.6
Canada	19,685	29.8	15.6	11.3	8.5	7.3	7.3	7.2	1.9	3.6	4.1	1.5	1.9
United States	163,526	32.2	17.0	6.1	7.6	10.4	6.1	5.8	1.8	3.4	4.2	1.5	3.8
Latin America (1999)													
Total	12,034	24.2	13.9	13.2	12.2	19.9	6.0	5.4	2.0	0.8	1.2	0.9	0.4
Antigua and Barbuda	0	na	na	na	na	na	na	na	na	na	na	na	na
Argentina	2,361	24.2	13.5	16.1	14.0	18.7	5.2.0	4.6	1.7	1.0	0.9	0.1	0.1
Bahamas	1	0.0	33.3	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	15	19.3	2.7	38.7	8.7	13.3	0.0	0.0	6.7	3.3	6.7	0.0	0.0
Belize	2	66.7	13.3	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	33	42.5	6.1	36.1	0.9	1.8	3.7	1.5	0.0	0.0	5.2	2.4	0.0
Brazil	5,144	23.0	14.8	10.3	11.9	23.3	4.7	6.2	2.1	0.7	1.0	1.6	0.4
Chile	879	33.6	13.1	14.2	11.8	8.9	9.9	3.3	2.8	0.7	1.2	0.1	0.4
Colombia	207	25.5	10.8	19.3	9.6	20.4	3.5	5.3	1.1	1.6	1.2	1.6	0.2
Costa Rica	69	29.2	8.9	36.8	8.6	6.6	4.7	3.4	1.5	0.4	0.0	0.0	0.0
Cuba	192	27.3	17.9	10.5	20.1	15.3	2.2	5.7	0.3	0.7	0.0	0.0	0.0
Dominica	0	na	na	na	na	na	na	na	na	na	na	na	na
Dominican Republic	6	55.4	10.7	16.1	0.0	0.0	0.0	0.0	0.0	0.0	17.9	0.0	0.0
Ecuador	20	46.5	6.6	16.7	1.5	6.1	15.2	1.5	0.0	0.0	0.0	2.5	3.5
El Salvador	0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grenada	1	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	14	44.2	28.3	15.9	3.6	0.0	0.0	0.0	0.0	0.7	7.2	0.0	0.0
Guyana	4	45.2	7.1	11.9	0.0	11.9	23.8	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	1	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	110	62.3	9.4	23.6	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0
Jamaica	44	31.8	12.6	11.0	17.6	0.5	8.5	2.3	1.8	1.6	8.0	1.8	2.7
Mexico	2,2910	22.1	12.4	13.5	10.7	21.9	8.4	5.8	1.9	0.9	1.5	0.5	0.5
Nicaragua	8	43.2	21.0	18.5	0.0	0.0	12.3	3.7	0.0	0.0	0.0	0.0	0.0
Panama	370	9.3	18.3	51.5	0.0	6.0	4.6	2.7	0.0	4.9	2.7	0.0	0.0
Paraguay	4	80.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peru	56	51.2	10.3	14.0	1.8	5.5	8.2	5.0	0.0	0.9	1.4	0.9	0.9
St. Kitts and Nevis	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0
St. Lucia	1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
St. Vincent	0	na	na	na	na	na	na	na	na	na	na	na	na
Suriname	3	16.1	3.2	77.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trinidad-Tobago	37	38.5	4.3	33.2	9.2	0.0	1.3	5.4	0.0	0.0	2.7	2.7	2.7
Uruguay	144	28.2	18.9	17.4	12.6	14.3	4.4	1.0	2.6	0.0	0.7	0.0	0.0
Venezuela	448	18.4	14.3	12.8	18.1	15.2	8.8	7.1	2.6	0.7	1.2	0.3	0.6
West Indies Associated States	5	47.8	15.2	10.9	0.0	21.7	6.5	0.0	0.0	0.0	0.0	0.0	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986
 (Percentages)

All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional	
Region and country/economy	(Percentage share)												
Sub-Saharan Africa (1999)													
Total	3,632	34.1	11.0	22.0	6.8	5.7	7.5	2.8	1.5	1.6	4.2	0.8	1.8
Angola	3	29.4	0.0	35.3	0.0	0.0	5.9	29.4	0.0	0.0	0.0	0.0	0.0
Benin	20	28.1	9.5	30.7	0.0	31.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Botswana	41	20.0	2.4	15.4	12.9	4.1	6.1	2.4	1.2	0.0	23.2	2.4	9.8
Burkina Faso	23	45.8	10.2	31.1	3.6	1.3	3.1	2.2	0.0	0.0	3.1	0.0	0.0
Burundi	3	17.2	0.0	82.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cameroon	61	34.0	13.0	23.0	7.7	10.2	2.8	2.5	1.6	1.6	1.6	0.3	1.6
Cape Verde Islands	1	66.7	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0
Central African Republic	4	55.0	25.0	12.5	0.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0
Chad Republic	2	37.5	0.0	0.0	0.0	0.0	0.0	0.0	62.5	0.0	0.0	0.0	0.0
Comoros	0	na	na	na	na	na	na	na	na	na	na	na	na
Congo, Democratic Republic	6	79.0	12.9	1.6	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Congo, Rep.	13	77.2	6.3	10.2	0.0	3.9	2.4	0.0	0.0	0.0	0.0	0.0	0.0
Cote Ivoire	40	40.4	3.0	28.8	4.0	0.0	4.3	0.0	6.3	0.0	12.3	0.8	0.0
Equatorial Guinea	1	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eritrea	2	16.7	27.8	16.7	0.0	0.0	11.1	0.0	0.0	27.8	0.0	0.0	0.0
Ethiopia	95	58.3	6.5	23.8	0.5	3.0	3.5	0.3	0.5	0.1	2.3	0.0	1.1
Gabon Republic	20	42.2	31.4	15.7	3.9	0.0	0.0	0.0	2.5	4.9	0.0	0.0	0.0
Gambia	17	91.8	4.7	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0
Ghana	73	39.0	7.4	22.2	4.4	0.7	3.4	4.8	0.0	1.8	9.8	1.1	5.5
Guinea Republic	2	13.6	13.6	45.5	0.0	0.0	22.7	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	6	91.8	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	252	56.0	7.1	25.5	0.6	0.6	2.9	0.6	0.0	1.0	4.6	0.4	0.6
Lesotho	1	23.1	76.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liberia	1	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Madagascar	20	30.3	6.1	46.0	3.5	2.5	7.1	0.0	0.0	2.5	2.5	0.0	0.0
Malawi	36	57.1	3.9	25.1	0.0	0.0	1.9	2.8	0.0	0.0	5.0	0.0	4.2
Mali	11	45.1	9.7	40.7	0.0	0.0	1.8	0.0	0.0	0.0	2.7	0.0	0.0
Mauritania	2	31.8	0.0	31.8	0.0	0.0	36.4	0.0	0.0	0.0	0.0	0.0	0.0
Mauritius	16	10.4	14.0	48.8	18.3	0.0	1.8	3.0	0.0	0.0	3.0	0.0	0.0
Mozambique	14	29.2	16.7	22.9	0.0	0.0	11.8	10.4	0.0	0.0	0.0	9.0	0.0
Namibia	13	6.2	8.5	42.6	3.9	0.0	26.4	0.0	0.0	3.9	7.8	0.0	0.0
Niger	21	28.2	11.7	48.4	0.0	0.0	2.3	0.0	0.0	0.0	4.7	0.0	4.7
Nigeria	397	34.3	9.0	30.5	5.1	4.0	4.4	4.9	1.5	0.0	3.4	1.0	1.9
Rwanda	4	88.4	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sao Tome and Principe	0	na	na	na	na	na	na	na	na	na	na	na	na
Senegal Republic	66	47.9	19.2	19.5	3.5	2.6	5.3	0.0	0.0	0.0	1.8	0.0	0.0
Seychelles	2	70.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25
Sierra Leone	3	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somalia	0	na	na	na	na	na	na	na	na	na	na	na	na

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986
(Percentages)

	All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional
Region and country/economy		(Percentage share)											
South Africa	2,018	26.9	12.2	18.2	9.7	8.0	10.6	3.2	2.2.0	2.5	3.9	0.7	1.9
Sudan	43	4.0	8.2	24.3	2.8	2.6	4.2	3.5	0.0	0.0	0.0	0.0	0.0
Swaziland	6	0.0	0.0	31.7	7.9	7.9	4.8	0.0	7.9	7.9	0.0	15.9	15.9
Tanzania	92	40.6	19.7	24.5	1.1	2.2	1.4	1.4	0.0	0.0	7.4	0.8	1.1
Togo	11	74.3	2.8	7.3	1.8	0.0	4.6	0.0	0.0	0.0	9.2	0.0	0.0
Uganda	59	57.2	5.1	27.8	0.0	0.0	1.2	0.0	0.0	0.3	3.4	3.4	1.7
Zambia	26	41.2	3.8	29.4	0.0	3.8	0.0	5.7	3.8	0.0	7.6	2.7	1.9
Zimbabwe	85	31.5	13.7	29.7	3.3	2.4	2.8	3.5	0.0	0.4	7.3	1.5	4.1
Near East and North Africa (1999)													
Total	9,086	27.9	9.9	7.2	16.0	16.6	3.9	9.3	3.4	1.6	1.9	0.8	1.3
Algeria	162	6.2	5.3	4.8	24.3	34.0	4.3	16.3	3.9	0.0	0.6	0.0	0.3
Bahrain	29	18.3	0.0	1.7	17.3	6.2	6.9	43.3	1.0	0.0	0.0	5.2	0.0
Djibouti	0				0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Egypt	1,198	19.6	5.9	8.3	31.9	17.3	4.2	11.4	0.4	0.3	0.4	0.0	0.3
Iran	624	17.9	3.1	2.5	48.7	13.5	1.9	6.9	4.2	0.6	0.2	0.0	0.5
Iraq	21	28.2	6.6	8.5	23.5	4.7	0.0	25.8	2.3	0.0	0.0	0.0	0.0
Israel	5,025	31.3	13.1	7.6	7.9	18.3	3.4	6.5	3.8	2.5	2.9	1.1	1.7
Jordan	204	26.2	6.8	13.3	14.6	7.5	7.8	19.2	1.0	1.0	1.2	0.6	1.0
Kuwait	260	32.0	10.0	4.5	11.8	4.8	8.6	21.5	3.3	1.0	1.0	0.4	1.3
Lebanon	100	47.7	11.4	5.0	4.8	9.6	9.7	5.7	3.0	1.0	0.0	0.5	1.5
Libya	19	35.4	12.2	10.6	15.9	5.3	0.0	17.5	0.0	0.0	0.0	0.0	3.7
Malta	20	55.7	5.0	2.5	0.0	0.0	0.0	19.9	0.0	0.0	5.0	0.0	10.0
Morocco	386	10.2	4.9	6.6	26.9	26.6	5.2	10.0	8.9	0.1	0.6	0.0	0.0
Oman	73	31.3	5.5	13.1	3.8	13.4	8.3	21.2	2.7	0.0	0.0	0.0	0.4
Qatar	19	29.7	8.1	0.0	23.2	4.3	5.4	23.2	0.0	0.0	5.4	0.0	0.0
Saudi Arabia	528	41.9	6.2	5.7	10.8	7.3	3.7	18.5	2.0	0.7	0.9	1.1	1.4
Syria	55	33.8	7.4	30.2	15.4	5.8	2.4	4.2	0.0	0.0	0.0	0.0	0.9
Tunisia	237	22.7	5.2	4.6	30.3	16.7	3.9	5.8	9.8	0.0	1.1	0.0	0.0
United Arab Emirates	118	38.1	13.9	5.1	6.6	4.4	6.9	12.3	0.0	3.1	4.7	4.1	0.8
Yemen	10	34.3	5.9	12.7	12.7	14.7	3.9	0.0	14.7	0.0	0.0	0.0	0.0
Western Europe (1999)													
Total	188,548	32.5	14.6	6.8	12.4	14.9	5.5	5.8	2.2	1.5	2.3	0.6	1.0
Albania	17	17.4	8.1	9.9	10.5	5.8	23.3	13.4	2.9	0.0	8.7	0.0	0.0
Andorra	0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Austria	3,580	44.7	14.1	5.7	10.2	12.4	4.2	3.6	1.7	0.8	1.9	0.2	0.6
Belgium	4,896	33.5	15.9	8.2	12.4	14.0	4.1	5.1	2.0	1.5	1.9	0.3	0.9
Bosnia and Herzegovina	9	41.1	5.6	0.0	0.0	16.7	0.0	14.4	11.1	0.0	11.1	0.0	0.0
Croatia	545	23.0	8.7	3.5	23.9	14.6	4.1	3.9	1.4	1.3	15.2	0.0	0.4
Cyprus	46	11.2	14.7	9.7	8.2	18.8	5.6	4.8	6.5	2.2	9.7	0.0	8.6
Denmark	4,131	37.0	17.9	11.2	7.7	10.7	6.1	3.6	1.6	1.0	2.0	0.5	0.7
Finland	4,025	42.1	14.5	9.4	8.3	9.2	4.1	5.3	1.3	1.7	1.5	1.3	1.4
France	27,374	27.7	15.4	5.4	14	18.2	6.4	6.0	4.0	0.9	1.4	0.1	0.4
Germany	37,308	29.6	14.9	5.5	14.7	18.9	4.8	5.8	2.1	1.5	1.4	0.2	0.6

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986
(Percentages)

	All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional
Region and country/economy		(Percentage share)											
Greece	2,241	30.1	7.5	8.8	13.0	16.2	7.3	11.5	2.9	0.4	1.2	0.2	1.0
Iceland	114	39.5	13.1	9.3	4.2	5.9	16.0	1.1	0.7	1.0	5.7	2.4	0.9
Ireland	1,237	29.1	19.0	13.8	9.7	11.5	2.5	5.7	2.4	1.4	3.2	0.8	1.0
Italy	17,149	35.1	13.4	4.6	12.3	18.2	5.7	6.4	2.4	0.6	0.8	0.1	0.3
Liechtenstein	17	0.0	0.0	0.0	42.2	15.7	0.0	30.1	0.0	0.0	12.0	0.0	0.0
Luxembourg	29	29.8	20.9	9.6	3.4	4.1	2.4	5.1	3.4	0.0	16.4	0.0	5.1
Macedonia	36	13.4	5.6	2.8	54.2	14.2	0.0	7.0	0.0	0.0	0.0	0.0	2.8
Monaco	21	9.4	1.4	16.4	13.1	0.0	59.2	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands.....	10,441	38.3	15.3	7.4	9.1	10.5	5.6	4.2	1.1	3.0	2.9	1.1	1.4
Norway	2,598	34.7	12.5	14.2	8.7	5.9	9.0	4.7	1.6	2.3	4.2	1.0	1.1
Portugal	1,508	16.2	12.7	10.4	17.9	21.9	6.7	9.6	1.9	0.7	1.4	0.1	0.5
San Marino	0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovenia	599	17.8	13.2	4.4	17.1	23.8	4.4	12.1	3.1	0.2	2.2	0.5	1.2
Spain	12,289	24.7	14.1	11.8	19.0	14.4	5.8	4.7	3.0	0.7	1.1	0.2	0.5
Sweden	8,326	40.8	16.4	7.4	8.4	11.3	3.8	5.7	1.3	1.4	2.0	1.0	0.6
Switzerland	6,993	35.1	16.6	5.1	13.2	16.9	5.3	4.1	1.2	0.8	1.2	0.3	0.4
Turkey	2,761	44.4	6.0	4.5	15.4	10.0	6.4	9.8	1.1	0.4	1.4	0.1	0.5
United Kingdom	39,711	34.0	14.4	6.8	9.3	11.0	5.6	6.0	1.5	2.7	4.6	1.7	2.4
Vatican City	2	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yugoslavia	546	18.9	8.0	6.1	22.0	23.1	3.2	14.9	2.6	0.2	0.5	0.0	0.5
Eastern Europe and Central Asia (1999)													
Total	30,763	7.3	10.5	5.1	26.3	33.9	4.8	7.6	2.0	0.8	1.5	0.0	0.2
Armenia	142	3.5	9.8	1.6	21.3	54.1	4.0	2.3	2.5	0.2	0.7	0.0	0.0
Azerbaijan	66	7.6	4.6	0.5	35.6	44.4	0.5	4.6	2.3	0.0	0.0	0.0	0.0
Bulgaria	801	12.7	14.3	5.5	26.5	20.5	5.2	10.6	3.2	0.3	1.0	0.0	0.1
Byelarus	564	3.2	8.2	3.5	23.8	44.5	1.0	8.2	1.9	0.5	4.6	0.0	0.6
Czech Republic	2,0050	11.6	14.9	8.2	26.4	21.0	4.0	6.2	2.1	1.7	3.7	0.1	0.0
Estonia	261	18.4	15.5	18.0	10.8	20.6	7.8	1.1	2.0	2.0	3.3	0.0	0.6
Georgia	112	6.3	3.8	1.8	18.6	45.9	8.6	7.6	7.2	0.2	0.0	0.0	0.0
Hungary	1,958	21.5	16.2	5.8	27.5	16.0	3.4	5.0	2.8	0.4	1.0	0.1	0.4
Kazakhstan	104	2.1	4.0	5.3	33.1	33.0	8.5	8.5	4.3	0.0	1.2	0.0	0.0
Kyrgyzstan	10	8.0	5.0	0.0	8.0	55.0	0.0	10.0	0.0	0.0	15.0	0.0	0.0
Latvia	153	5.4	13.0	3.1	37.3	25.6	1.4	11.9	1.6	0.0	0.7	0.0	0.0
Lithuania	214	9.1	12.2	6.4	20.2	37.7	3.5	7.1	2.6	0.0	0.7	0.0	0.5
Moldova	92	4.3	2.0	4.3	23.7	58.1	1.1	4.8	1.1	0.5	0.0	0.0	0.0
Poland	4,523	12.0	8.6	5.4	29.7	30.0	3.6	6.5	3.2	0.4	0.5	0.0	0.1
Romania	785	3.0	3.3	2.0	36.8	34.4	1.7	11.9	6.6	0.3	0.1	0.1	0.1
Russia	15,654	3.9	10.6	5.0	25.0	38.5	5.8	7.3	1.2	0.7	1.7	0.0	0.3
Slovakia	871	13.1	18.8	4.3	27.5	15.4	2.7	5.2	2.4	6.0	4.6	0.0	0.0
Tajikistan	20	1.5	27.0	10.2	33.2	10.2	15.3	0.0	2.6	0.0	0.0	0.0	0.0
Turkmenistan	0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	2,194	4.2	3.6	2.5	22.2	44.8	3.9	15.9	2.2	0.1	0.6	0.0	0.0
Uzbekistan	236	1.6	3.2	1.6	50.6	35.8	3.6	2.8	0.8	0.0	0.1	0.0	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986

(Percentages)

	All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional
Region and country/economy		(Percentage share)											
		Asia (1999)											
Total	86,405	23.6	12.7	5.8	18.8	21.4	3.2	11.1	1.6	0.4	0.7	0.2	0.4
Afghanistan	0	na	na	na	na	na	na	na	na	na	na	na	na
Bangladesh	148	18.8	11.1	12.9	13.4	13.8	6.1	13.0	0.7	0.5	4.9	4.0	0.7
Bhutan	1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brunei	20	22.2	0.0	9.9	18.7	11.3	23.2	4.9	4.9	0.0	0.0	0.0	4.9
Cambodia	5	53.7	0.0	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0
China	11,675	10.0	9.3	4.20	26.0	27.1	4.3	14.3	3.6	0.2	0.5	0.1	0.4
Hong Kong	1,817	23.2	6.3	6.8	11.3	13.7	3.5	18.1	3.7	2.7	4.5	1.7	4.4
India	9,217	13.8	14.6	6.8	25.9	19.2	5.4	11.0	1.2	0.1	1.3	0.1	0.4
Indonesia	142	21.1	14.8	28.9	8.2	5.4	10.2	2.7	0.0	0.6	6.0	1.8	0.4
Japan	47,826	30.0	14.5	5.9	16.0	21.2	2.5	7.9	1.0	0.4	0.4	0.1	0.1
Laos	2	0.0	0.0	16.7	0.0	0.0	27.8	0.0	0.0	55.6	0.0	0.0	0.0
Malaysia	416	21.5	8.0	17.0	32.5	4.9	2.0	10.2	0.5	0.8	1.2	0.1	1.3
Maldives	3	0.0	0.0	40.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0
Mongolia	8	32.1	14.3	11.9	15.5	0.0	20.2	6.0	0.0	0.0	0.0	0.0	0.0
Myanmar	10	46.9	19.8	0.0	10.4	5.2	12.5	5.2	0.0	0.0	0.0	0.0	0.0
Nepal	39	52.2	10.3	23.5	0.0	0.0	7.0	1.3	0.0	2.6	3.4	0.0	0.0
North Korea	1	76.9	0.0	0.0	0.0	0.0	0.0	23.1	0.0	0.0	0.0	0.0	0.0
Pakistan	277	24.5	7.4	16.8	19.8	16.6	1.7	7.8	1.6	1.2	1.4	1.0	0.4
Philippines	164	14.4	14.4	47.4	2.4	3.0	5.4	0.3	0.6	1.7	7.0	1.8	1.3
Singapore	1,653	14.9	8.3	3.9	14.7	22.1	1.3	25.7	3.1	0.7	2.6	0.3	2.3
South Korea	6,675	16.5	9.1	3.4	20.8	25.2	2.4	18.9	2.0	0.2	0.8	0.1	0.6
Sri Lanka	84	28.8	17.4	25.1	7.5	7.3	3.1	6.1	1.2	0.4	1.8	1.4	0.0
Taiwan	5,655	23.8	8.9	5.3	18.3	17.7	4.3	17.6	1.8	0.3	1.0	0.4	0.7
Thailand	470	45.0	11.2	16.7	9.6	3.3	3.6	5.7	0.5	0.4	1.7	1.4	1.0
Vietnam	98	20.1	6.7	15.0	8.7	17.7	5.6	9.7	14.1	0.3	1.8	0.3	0.0
		Pacific (1999)											
Total	14,964	29.2	12.6	16.6	8.0	7.6	7.8	5.2	1.7	3.2	4.1	1.8	2.2
Australia	12,525	29.8	13.5	14.7	8.1	8.0	7.7	5.3	1.8	2.9	4.2	1.9	2.0
Fiji	13	15.7	0.7	23.9	5.2	0.0	17.2	7.5	11.2	0.0	14.9	0.0	3.7
Kiribati	0	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	1	16.7	0.0	0.0	0.0	0.0	83.3	0.0	0.0	0.0	0.0	0.0	0.0
Micronesia	1	76.9	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nauru	0	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	2,375	26.1	8.3	26.2	7.6	5.4	8.1	4.5	1.1	4.6	3.8	1.1	3.4
Papua New Guinea	36	43.3	5.3	30.2	2.2	8.4	4.7	0.0	0.0	0.0	0.0	0.0	5.6
Solomon Islands	6	8.5	0.0	71.2	0.0	0.0	20.3	0.0	0.0	0.0	0.0	0.0	0.0
Tonga	1	37.5	0.0	62.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0	na	na	na	na	na	na	na	na	na	na	na	na
Vanuatu	3	2.9	0.0	23.5	0.0	0.0	14.7	0.0	0.0	0.0	58.8	0.0	0.0
Western Samoa	3	0.0	10.7	89.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986
(Percentages)

	All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional
Region and country/economy													
(Percentage share)													
Worldwide (1986)													
Total	462,746	29.8	15.0	7.9	12.5	12.2	4.4	6.7	1.8	2.7	3.7	0.9	2.7
North America (1986)													
Total	199,138	30.7	14.7	8.5	7.5	9.5	4.9	6.6	1.8	4.3	5.1	1.6	4.9
Canada	20,871	26.4	13.2	14.3	8.6	8.2	6.4	7.7	1.8	4.2	4.9	1.1	2.9
United States	178,266	31.2	14.9	7.8	7.3	9.6	4.7	6.5	1.8	4.3	5.2	1.6	5.1
Latin America (1986)													
Total	5,583	28.0	14.8	11.4	12.6	14.5	6.5	3.8	2.1	1.9	2.8	0.9	0.7
Antigua and Barbuda	0	na	na	na	na	na	na	na	na	na	na	na	na
Argentina	1,459	30.6	16.2	9.9	16.8	14.9	4.2	4.1	0.9	0.6	1.5	0.0	0.1
Bahamas	2	58.3	0.0	0.0	0.0	0.0	41.7	0.0	0.0	0.0	0.0	0.0	0.0
Barbados	20	22.7	0.0	15.2	10.1	0.0	1.5	0.0	0.0	12.6	22.7	0.0	15.2
Belize	1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bolivia	5	72.0	12.0	4.0	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	1,777	21.6	15.7	9.1	10.7	18.9	7.7	4.0	3.0	3.8	2.7	2.2	0.6
Chile	673	42.0	12.5	9.8	13.2	5.0	8.9	3.7	1.9	0.5	1.6	0.5	0.4
Colombia	90	31.2	11.0	38.0	2.4	2.0	4.4	2.2	2.8	2.2	2.2	0.0	1.7
Costa Rica	44	33.9	7.6	30.3	2.1	3.0	6.2	0.0	0.0	2.3	11.5	0.0	3.4
Cuba	56	24.3	22.0	7.2	10.7	22	3.2	7.2	1.8	0.0	1.8	0.0	0.0
Dominica	0	na	na	na	na	na	na	na	na	na	na	na	na
Dominican Republic	9	35.1	10.6	26.6	0.0	0.0	0.0	10.6	10.6	0.0	0.0	0.0	7.4
Ecuador	10	17.5	7.8	43.7	0.0	4.9	0.0	2.9	0.0	0.0	9.7	9.7	4.9
El Salvador	2	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grenada	0	na	na	na	na	na	na	na	na	na	na	na	na
Guatemala	19	39.5	28.6	10.8	0.0	0.0	5.4	5.4	0.0	0.0	10.8	0.0	0.0
Guyana	5	80.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haiti	5	90.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	4	13.2	0.0	86.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	57	29.4	7.5	17.9	7.5	7.0	0.3	1.7	0.9	1.7	17.4	0.0	8.7
Mexico	866	28.3	13.4	11.3	10.8	16.2	7.2	4.4	2.3	1.5	3.7	0.4	0.4
Nicaragua	4	28.6	0.0	14.3	0.0	0.0	28.6	0.0	0.0	0.0	14.3	0.0	14.3
Panama	27	2.2	10.9	56.2	0.0	1.1	10.9	0.0	0.0	5.5	9.1	0.0	3.6
Paraguay	6	32.8	24.6	36.1	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peru	51	30.5	7.0	44.2	4.9	0.6	7.0	1.0	0.0	0.0	1.0	1.9	1.9
St. Kitts and Nevis	0	na	na	na	na	na	na	na	na	na	na	na	na
St. Lucia	0	na	na	na	na	na	na	na	na	na	na	na	na
St. Vincent	0	na	na	na	na	na	na	na	na	na	na	na	na
Suriname	0	na	na	na	na	na	na	na	na	na	na	na	na
Trinidad-Tobago	48	21.7	3.1	29.5	7.2	5.2	3.1	11.4	0.0	0.0	14.5	0.0	4.1
Uruguay	31	41.1	23.3	11.3	8.1	6.5	3.2	0.0	0.0	3.2	3.2	0.0	0.0
Venezuela	307	18.8	18.2	9.3	20.0	18.1	5.9	2.1	3.4	1.7	2.4	0.0	0.0
West Indies Associated States	4	39.0	12.2	24.4	0.0	0.0	0.0	0.0	0.0	0.0	12.2	0.0	12.2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986

(Percentages)

All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional	
Region and country/economy	(Percentage share)												
Sub-Saharan Africa (1986)													
Total	4,639	36.7	10.2	20.0	7.7	4.2	5.8	4.2	1.0	1.4	4.8	1.5	2.7
Angola	0	na	na	na	na	na	na	na	na	na	na	na	na
Benin	0	na	na	na	na	na	na	na	na	na	na	na	na
Botswana	24	16.5	4.1	26.0	0.0	4.1	12.4	0.0	0.0	5.4	0.0	0.0	8.3
Burkina Faso	14	40.1	8.5	51.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Burundi	4	42.9	0.0	23.8	7.1	23.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cameroon	15	23.2	18.5	28.5	27.8	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Cape Verde Islands	0	na	na	na	na	na	na	na	na	na	na	na	na
Central African Republic	4	38.6	52.3	0.0	11.4	0.0	0.0	0.0	0.0	0.0	22.7	0.0	0.0
Chad Republic	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Comoros	0	na	na	na	na	na	na	na	na	na	na	na	na
Congo, Democratic Republic	31	64.6	5.5	6.5	1.0	6.5	3.2	3.2	0.0	1.6	5.8	1.6	0.0
Congo, Republic	15	42.8	10.5	24.3	13.2	0.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0
Côte d'Ivoire	46	28.0	13.5	40.7	9.1	2.8	2.2	1.1	0.0	0.0	0.0	1.5	1.1
Equatorial Guinea	0	na	na	na	na	na	na	na	na	na	na	na	na
Eritrea	0	na	na	na	na	na	na	na	na	na	na	na	na
Ethiopia	45	49.2	0.7	26.6	7.1	4.4	0.7	0.0	3.3	0.0	5.5	2.2	0.0
Gabon Republic	16	82.3	8.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0
Gambia	0	na	na	na	na	na	na	na	na	na	na	na	na
Ghana	25	55.1	8.1	22.3	0.0	1.2	4.0	0.0	0.0	0.0	1.2	4.0	4.0
Guinea Republic	1	0.0	0.0	37.5	62.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guinea-Bissau	1	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenya	238	54.5	11.6	22.2	0.5	0.3	1.5	0.0	0.0	0.8	4.1	2.5	1.8
Lesotho	7	40.3	0.0	7.5	0.0	14.9	7.5	0.0	0.0	0.0	29.9	0.0	0.0
Liberia	5	74.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0
Madagascar	10	41.2	16.5	13.4	3.1	10.3	15.5	0.0	0.0	0.0	0.0	0.0	0.0
Malawi	21	32.9	1.4	38.0	0.0	0.0	4.7	0.0	0.0	0.0	18.8	0.0	4.7
Mali	12	44.5	2.5	25.2	2.5	8.4	0.0	0.0	0.0	8.4	8.4	0.0	0.0
Mauritania	3	35.7	17.9	0.0	0.0	0.0	10.7	35.7	0.0	0.0	0.0	0.0	0.0
Mauritius	2	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Mozambique	10	45.9	3.1	10.2	0.0	0.0	10.2	0.0	0.0	0.0	30.6	0.0	0.0
Namibia	0	na	na	na	na	na	na	na	na	na	na	na	na
Niger	9	31.8	37.6	7.1	11.8	5.9	5.9	0.0	0.0	0.0	0.0	0.0	0.0
Nigeria	976	31.6	9.4	23.2	6.8	1.9	5.3	3.9	0.9	2.2	5.4	3.8	5.6
Rwanda	8	58.0	0.0	24.7	3.7	0.0	0.0	0.0	0.0	0.0	12.3	0.0	0.0
Sao Tome and Principe	0	na	na	na	na	na	na	na	na	na	na	na	na
Senegal Republic	0	na	na	na	na	na	na	na	na	na	na	na	na
Senegambia	69	28.8	24.6	16.0	9.3	1.9	5.5	0.0	1.5	1.5	3.6	0.0	7.3
Seychelles	1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sierra Leone	10	41.7	4.9	29.1	0.0	0.0	0.0	4.9	0.0	0.0	0.0	19.4	0.0
Somalia	7	29.9	7.5	41.8	14.9	0.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0
South Africa	2,653	36.0	10.9	17.0	9.7	5.9	7.1	5.6	1.3	1.3	3.6	0.4	1.4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986
 (Percentages)

	All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional
Region and country/economy		(Percentage share)											
Sudan	96	43.5	6.3	35.1	3.1	2.3	0.5	1.0	0.5	0.0	6.6	1.0	0.0
Swaziland	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Tanzania	90	41.1	1.4	32.9	1.1	0.0	1.1	2.0	0.0	0.6	10.0	3.3	6.2
Togo	6	35.1	40.4	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5
Uganda	23	31.9	14.4	28.4	6.1	4.4	8.7	0.0	0.0	0.0	2.2	4.4	0.0
Zambia	44	34.6	0.0	6.4	0.0	2.3	8.0	2.3	0.0	0.0	22.4	10.3	13.7
Zimbabwe	98	40.8	7.4	28.5	1.0	0.5	1.3	0.0	0.0	2.5	11.3	0.0	6.6
Near East and North Africa (1986)													
Total	7,659	30.1	11.7	9.6	14.1	10.7	3.4	8.5	2.8	2.0	3.9	0.7	2.3
Algeria	81	19.5	5.0	13.9	19.1	23.9	2.0	8.3	3.1	0.6	5.0	0.0	0.0
Bahrain	24	5.5	1.3	0.0	4.3	12.8	0.0	69.4	0.0	0.0	0.0	2.1	4.3
Djibouti	0	na	na	na	na	na	na	na	na	na	na	na	na
Egypt	1,070	14.2	6.4	11.9	40.5	8.8	3.4	11.7	0.9	0.4	1.4	0.2	0.2
Iran	96	18.0	7.5	8.4	23.8	11.5	7.0	10.3	9.7	0.0	3.7	0.0	0.0
Iraq	222	14.1	6.0	13.7	37.1	10.6	7.8	9.6	0.2	0.0	0.0	0.5	0.5
Israel	4,989	33.7	14.0	9.2	7.0	11.5	2.9	6.6	3.2	2.9	5.1	0.8	3.1
Jordan	119	19.5	5.3	11.6	17.6	9.5	6.3	14.3	4.6	0.8	4.2	2.5	3.8
Kuwait	226	35.9	17.1	3.5	16.0	4.9	5.7	11.4	2.6	0.4	1.3	0.7	0.4
Lebanon	94	47.9	12.9	9.5	5.1	8.5	0.5	1.8	0.0	4.0	6.0	2.6	1.1
Libya	43	37.0	6.9	21.9	10.4	6.9	4.2	6.9	4.6	0.0	1.2	0.0	0.0
Malta	3	16.7	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7
Morocco	76	21.4	8.6	17.6	19.4	8.1	8.2	8.9	2.6	0.0	4.0	0.0	1.3
North Yemen	7	23.1	0.0	0.0	15.4	0.0	0.0	15.4	0.0	0.0	30.8	0.0	15.4
Oman	2	0.0	0.0	29.4	0.0	0.0	17.6	17.6	0.0	0.0	0.0	0.0	29.4
Qatar	17	47.7	0.0	21.5	4.7	7.6	0.0	19.2	0.0	0.0	0.0	0.0	0.0
Saudi Arabia	487	39.0	6.8	6.4	14.9	8.6	3.9	15.8	2.1	0.1	0.8	0.3	1.2
South Yemen	1	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Syria	15	11.3	9.9	38.4	9.9	4.0	0.0	13.2	13.2	0.0	0.0	0.0	0.0
Tunisia	76	27.3	4.1	8.3	24.4	16.3	10.0	0.7	7.9	0.0	1.0	0.0	0.0
United Arab Emirates	13	28.0	8.0	8.0	12.0	16.0	4.0	20.0	0.0	0.0	4.0	0.	
Western Europe (1986)													
Total	143,496	35.3	15.2	7	12.9	12	3.8	5.6	1.9	1.7	2.9	0.5	1.3
Albania	0	na	na	na	na	na	na	na	na	na	na	na	na
Andorra	0	na	na	na	na	na	na	na	na	na	na	na	na
Austria	2,342	45.6	12.6	4.4	10.7	10.3	3.0	4.4	2.4	1.0	4.3	0.3	1.0
Belgium	3,658	38.7	15.9	6.5	12.8	11.0	2.9	3.7	2.4	1.6	3.1	0.3	1.2
Cyprus	13	15.4	0.0	53.8	0.0	0.0	3.8	3.8	7.7	0.0	7.7	0.0	7.7
Denmark	3,636	54.5	15.3	6.6	5.2	8.3	2.7	2.2	1.4	0.9	1.7	0.6	0.6
Finland	2,831	49.0	13.7	8.4	7.5	5.9	3.3	4.9	1.6	1.3	2.1	0.6	1.6
France	20,874	29.4	16.8	5.4	15.4	17.5	4.6	5.0	1.9	1.2	2.1	0.1	0.5
Germany (East)	3,865	21.9	15.4	9.8	24.9	13.4	2.4	6.9	1.6	0.9	2.1	0.0	0.8
Germany (West)	25,654	29.7	14.4	6.2	15.3	15.0	3.5	8.0	2.5	2.2	2.3	0.2	0.8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986
(Percentages)

	All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional
Region and country/economy		(Percentage share)											
Greece	1,158	19.3	9.5	9.1	16.4	17.8	8.1	12.7	3.6	0.3	1.9	0.2	1.1
Iceland	59	37.6	12.7	9.6	0.8	8.5	19.5	0.8	4.2	0.0	1.7	3.4	1.4
Ireland	776	36.7	10.3	9.7	11.6	9.5	4.4	3.7	3.1	1.2	6.5	0.9	2.4
Italy	10,114	40.0	14.0	3.7	15.3	14.4	3.7	4.2	2.2	0.8	1.3	0.1	0.4
Liechtenstein	6	0.0	8.3	0.0	0.0	91.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg	9	34.1	0.0	5.5	0.0	0.0	0.0	27.5	0.0	0.0	11.0	0.0	22
Monaco	13	17.2	3.7	22.4	7.5	0.0	39.6	7.5	0.0	0.0	2.2	0.0	0.0
Netherlands.....	8,251	37.3	16.9	8.7	9.9	10.9	3.9	3.6	1.9	2.4	2.8	0.5	1.3
Norway	2,293	44.3	13.4	10.5	9.0	4.6	6.3	3.2	1.5	2.3	4.0	0.3	0.7
Portugal	370	22.0	13.3	5.6	17.7	20	2.5	9.8	3.6	0.7	2.8	0.0	1.9
San Marino	0	na	na	na	na	na	na	na	na	na	na	na	na
Slovenia	0	na	na	na	na	na	na	na	na	na	na	na	na
Spain	4,871	20.3	19.6	7.2	30.6	11.3	2.8	4.2	2.1	0.5	1.0	0.1	0.3
Sweden	7,656	50.2	16.5	6.8	7.3	6.7	2.7	4.2	1.1	1.2	2.1	0.5	0.7
Switzerland	5,488	39.3	16.6	4.2	10.9	15.6	3.3	4.5	1.4	1.4	2.3	0.2	0.4
Turkey	386	27.5	6.6	5.3	21.8	10.9	7.5	15.5	2.0	0.5	1.4	0.5	0.4
United Kingdom	38,168	36.8	14.7	9.0	8.8	8.3	4.0	6.1	1.6	2.4	4.6	1.0	2.6
Vatican City	3	0.0	0.0	0.0	40.7	63	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yugoslavia	1,003	23.5	11.6	3.7	23.1	18.7	4.0	8.6	2.8	1.2	1.7	0.1	1.1
Eastern Europe and Central Asia (1986)													
Total	42,299	14.3	17.6	3.2	27.8	24.2	4.1	4.9	1.5	0.9	1.4	0.0	0.2
Bulgaria	1,158	7.3	44.1	2.0	19.2	16.6	2.3	5.9	1.7	0.3	0.5	0.0	0.1
Czechoslovakia	3,127	18.7	13.3	5.3	31.0	9.4	4.5	3.4	1.1	5.1	8.1	0.1	0.1
Hungary	1,920	23.6	19.7	4.9	27.5	10.4	2.4	2.5	4.4	0.7	2.8	0.3	1.0
Poland	3,983	14.1	10.1	6.0	31.0	24.7	2.3	6.8	2.9	0.3	1.0	0.1	0.7
Romania	562	9.3	8.4	0.9	37.2	21.4	0.9	13.8	6.7	0.4	0.7	0.0	0.2
USSR	31,550	13.6	18.1	2.6	27.2	26.8	4.5	4.8	1.1	0.6	0.7	0.0	0.1
Asia (1986)													
Total	47,712	22.5	14.5	7.5	20.5	15.6	3.5	12.2	1.3	0.5	1.3	0.1	0.4
Afghanistan	4	65.8	0.0	34.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	124	27.9	10.3	11.6	10.9	13.7	2.7	5.5	0.0	0.0	15.1	1.6	0.8
Bhutan	0	na	na	na	na	na	na	na	na	na	na	na	na
Brunei	1	76.9	0.0	0.0	0.0	0.0	23.1	0.0	0.0	0.0	0.0	0.0	0.0
Cambodia	0	na	na	na	na	na	na	na	na	na	na	na	na
China	2,911	18.8	9.2	3.8	18.2	27.2	6.8	10.8	3.6	0.1	1.0	0.2	0.4
Hong Kong	84	1.5	0.0	0.0	0.0	0.0	0.0	1.2	0.0	21.2	49.9	2.4	23.8
India	9,925	11.3	16.4	8.7	27.2	15.4	6.3	10.5	1.3	0.3	2.0	0.1	0.4
Indonesia	72	25.1	5.6	30.4	6.7	0.7	11.3	3.5	0.0	0.4	10.6	1.8	3.8
Japan	31,957	26.6	15.0	7.1	19.0	15.0	2.3	12.7	1.0	0.6	0.6	0.1	0.2
Laos	0	na	na	na	na	na	na	na	na	na	na	na	na
Malaysia	186	26.5	9.0	20.5	17.4	4.6	5.3	2.8	1.2	1.6	4.8	0.5	5.7
Maldives	0	na	na	na	na	na	na	na	na	na	na	na	na

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-43.

Regional and country portfolio of scientific articles, by field: 1999 and 1986
(Percentages)

	All Fields (Number of articles)	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology	Mathematics	Psychology	Social sciences	Health	Professional
Region and country/economy											(Percentage share)		
Mongolia	9	10.8	18.3	12.9	26.9	32.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Myanmar	8	66.3	24.1	3.6	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0
Nepal	18	14.7	0.0	13.6	5.4	0.0	3.8	10.9	0.0	5.4	35.3	5.4	5.4
North Korea	2	31.3	37.5	0.0	31.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	161	9.6	7.3	27.2	19.3	15.7	5.0	7.8	1.6	0.3	4.4	0.6	1.2
Philippines	151	11.7	4.4	60.9	2.3	1.7	1.3	2.6	0.0	0.7	11.2	1.2	2.0
Singapore	358	32.1	7.0	5.0	8.4	12.4	4.3	14.1	3.5	0.8	7.7	0.0	4.7
South Korea	516	7.0	5.3	3.4	37.5	15.6	2.6	20.8	2.3	0.3	3.8	0.0	1.5
Sri Lanka	52	21.2	6.4	30.1	6.8	9.7	12.8	3.9	0.0	1.6	7.8	0.0	0.0
Taiwan	904	17.7	6.7	6.5	17.3	15.6	1.9	24.9	2.5	0.7	6.1	0.0	0.1
Thailand	226	35.8	19.1	10.6	6.5	4.7	4.9	6.5	0.6	0.0	7.7	1.1	2.3
Vietnam	45	5.1	2.2	4.9	14.1	40.3	3.4	8.9	21.3	0.0	0.0	0.0	0.0
		Pacific (1986)											
Total	12,219	29.5	12.2	18.7	7.9	6.2	7.6	4.6	1.8	3.3	5.3	0.9	1.9
Australia	10,121	29.1	12.7	17.1	8.3	6.8	7.7	5.0	1.9	3.2	5.7	0.9	1.9
Fiji	27	14.8	0.0	44.4	7.4	0.0	13.0	0.0	0.0	0.0	9.3	0.0	11.1
Kiribati	0	na	na	na	na	na	na	na	na	na	na	na	na
Marshall Islands	0	na	na	na	na	na	na	na	na	na	na	na	na
Micronesia	0	na	na	na	na	na	na	na	na	na	na	na	na
Nauru	0	na	na	na	na	na	na	na	na	na	na	na	na
New Zealand	1,994	31.9	10.3	26.4	6.3	3.5	7.3	3.0	1.5	3.8	3.4	0.9	1.8
Papua New Guinea	69	33.4	6.7	25.1	2.2	1.5	2.9	0.0	0.0	2.9	13.8	0.0	11.7
Solomon Islands	4	73.0	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tonga	1	83.3	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuvalu	0	na	na	na	na	na	na	na	na	na	na	na	na
Vanuatu	3	0.0	0.0	83.9	16.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Western Samoa	2	66.7	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

na = not applicable

NOTES: Article counts are based on fractional assignments; for example, an article with two authors from different countries is counted as one-half of an article for each country. Articles are assigned to fields based on journal field classifications developed by CHI Research, Inc., based on a 1985 set of journals classified and covered by the Institute for Scientific Information's Science and Social Science Citation Indexes.

SOURCES: Institute for Scientific Information, Science Citation Index and Social Science Citation Index: CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-44.

Distribution of U.S. scientific and technical articles, by sector and field: 1988, 1994, and 1999
(Percentages)

Year	Number of articles	Total S&E	Physics	Chemistry	Earth and space	Mathematics	Clinical medicine	Biomedical research	Biology	Engineering and technology	Psychology	Social sciences	Health and professional
All U.S. sectors													
1988	175,837	100.0	10.3	7.6	4.6	2.3	31.1	15.5	7.5	6.5	3.9	4.7	6.0
1994	178,425	100.0	11.0	7.5	5.4	1.8	31.0	16.6	6.8	6.7	3.3	4.3	5.6
1999	163,526	100.0	10.4	7.6	6.1	1.8	32.2	17.0	6.1	5.8	3.4	4.2	5.3
Academic													
1988	126,169	100.0	9.1	7.6	4.1	2.8	30.0	16.2	8.0	5.2	4.8	5.5	6.6
1994	129,104	100.0	10.5	7.6	4.8	2.3	29.5	17.3	7.0	5.7	4.1	5.0	6.2
1999	120,149	100.0	10.0	7.9	5.4	2.3	30.2	17.8	6.3	5.0	4.1	5.0	6.0
Industry													
1988	14,810	100.0	21.8	15.5	3.8	1.1	16.4	10.0	2.7	20.0	1.0	1.8	5.9
1994	14,598	100.0	16.6	14.4	4.8	0.7	22.2	12.2	3.5	19.3	0.6	1.2	4.6
1999	11,431	100.0	14.5	12.6	5.1	0.8	26.6	13.3	2.9	17.9	0.8	1.3	4.1
Nonprofit													
1988	12,278	100.0	2.0	1.7	3.6	0.4	60.0	16.7	3.4	1.8	2.2	4.0	4.3
1994	12,801	100.0	2.0	2.2	3.6	0.3	60.0	17.9	3.1	1.3	1.9	4.0	3.8
1999	12,597	100.0	1.5	2.1	5.2	0.3	61.2	17.1	3.2	0.9	1.7	3.2	3.6
Federal Government													
1988	14,287	100.0	6.9	5.3	8.4	0.6	36.7	17.1	13.0	5.2	1.4	3.0	2.6
1994	13,913	100.0	8.6	5.4	9.7	0.4	33.2	17.5	13.2	5.5	1.2	3.0	2.3
1999	11,582	100.0	8.8	4.5	11.3	0.5	33.9	17.4	12.4	5.6	1.2	2.3	2.0
FFRDCs													
1988	4,943	100.0	44.8	10.3	11.4	1.2	4.7	8.4	2.1	15.4	0.1	1.1	0.6
1994	4,885	100.0	44.4	9.1	13.5	0.9	5.0	8.4	1.6	15.3	0.2	1.1	0.4
1999	4,631	100.0	44.8	12.9	15.4	0.7	4.1	8.2	1.0	12.4	0.0	0.3	0.2
Other government													
1988	2,080	100.0	0.3	1.8	5.8	0.1	50.6	12.7	10.6	1.6	4.4	2.4	9.7
1994	1,816	100.0	0.1	2.5	5.9	0.2	47.6	11.9	11.7	1.6	5.2	3.2	10.1
1999	1,480	100.0	0.3	1.7	8.1	0.2	49.5	12.5	12.2	1.1	3.6	2.5	8.3
Unknown sector													
1988	1,270	100.0	2.9	2.5	3.8	0.7	36.2	5.6	4.4	7.2	12.4	7.7	16.7
1994	1,307	100.0	3.1	1.8	4.6	0.7	40.0	6.7	5.9	7.6	9.1	5.4	15.3
1999	1,657	100.0	4.6	3.5	5.0	0.7	44.2	8.0	5.8	6.7	4.3	5.0	12.3

FFRDCs = Federally Funded Research and Development Centers

NOTES: Article counts are based on fractional assignments; for example, an article with two authors from different sectors is counted as one-half of an article for each sector. Multi-authored articles with foreign authors are counted similarly. Articles are assigned to fields based on journal field classifications developed by CHI Research, Inc., based on a 1985 set of journals classified and covered by the Institute for Scientific Information's Science and Social Science Citation Indexes. Sector article counts and field shares may not add to total because of rounding.

SOURCES: Institute for Scientific Information, Science Citation Index and Social Science Citation Index; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS), special tabulations.

See figure 5-38 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 5-45.

Incidence of multiple corporate authorship of U.S. scientific and technical articles, by field: 1988, 1994, and 1999

Years	All Sectors				Academic				Industry				Non-profit				State and local government			
	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored												
	Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles		
Total science and engineering																				
1988	185,355	47.6	37.2	10.4	147,249	52.3	42.1	10.2	19,763	50.2	41.9	8.2	19,307	72.0	62.4	9.6	3,603	75.2	69.7	5.4
1994	193,833	54.1	38.2	15.9	156,073	57.9	42.4	15.5	21,847	63.1	48.6	14.5	21,315	75.9	61.5	14.4	3,393	78.3	69.9	8.3
1999	183,906	60.3	38.7	21.6	150,964	63.1	42.4	20.6	19,360	73.0	51.8	21.2	22,240	80.1	60.6	19.5	3,023	83.5	72.6	10.9
Physics																				
1988	19,804	45.2	28.8	16.5	13,954	53.3	35.9	17.4	4,130	45.0	35.1	9.9	374	61.0	42.0	19.0	8	50.0	50.0	0.0
1994	22,679	55.5	29.3	26.2	17,502	60.8	33.8	27.0	3,589	62.4	44.9	17.4	422	68.7	41.0	27.7	6	100.0	100.0	0.0
1999	20,871	63.0	28.4	34.6	16,559	66.8	32.0	34.8	2,697	71.7	48.5	23.2	369	80.5	45.5	35.0	10	90.0	60.0	30.0
Chemistry																				
1988	14,087	31.4	21.2	10.2	10,626	35.6	24.8	10.8	2,707	33.1	26.6	6.5	276	45.7	34.4	11.2	47	42.6	38.3	4.3
1994	14,609	40.2	24.4	15.8	11,386	43.1	27.4	15.7	2,760	49.5	35.5	13.9	399	60.2	45.4	14.8	66	57.6	50.0	7.6
1999	13,869	46.3	26.1	20.2	11,335	47.5	28.2	19.3	2,076	59.3	38.4	20.9	378	74.9	55.6	19.3	41	80.0	68.3	12.2
Earth and space sciences																				
1988	8,887	49.8	32.9	16.9	6,483	55.3	38.4	16.8	896	68.9	58.1	10.7	766	70.4	43.7	26.6	180	60.0	55.0	5.0
1994	10,983	59.8	34.0	25.7	8,270	63.6	38.3	25.3	1,169	72.5	52.4	20.1	941	80.7	45.3	35.4	179	69.3	60.3	8.9
1999	12,133	68.0	34.1	33.9	9,316	71.4	38.8	32.6	1,168	84.8	56.5	28.3	1467	84.0	36.5	47.6	224	79.0	72.8	6.3
Mathematics																				
1988	4,385	40.0	20.3	19.7	4,086	41.3	21.2	20.1	236	57.2	43.6	13.6	83	65.1	44.6	20.5	4	75.0	75.0	0.0
1994	3,620	46.9	22.7	24.2	3,440	47.6	23.4	24.2	163	74.2	56.4	17.8	69	73.9	46.4	27.5	5	60.0	60.0	0.0
1999	3,594	53.6	21.8	31.8	3,406	54.4	22.3	32.1	164	78.0	51.2	26.8	76	76.3	53.9	22.4	5	60.0	60.0	0.0
Clinical medicine																				
1988	56,945	60.8	52.5	8.3	46,095	65.5	57.8	7.7	3,735	65.0	55.4	9.6	11,637	76.9	69.8	7.0	2,011	84.2	78.8	5.4
1994	59,145	64.3	51.2	13.1	47,640	68.5	56.1	12.4	5,557	73.5	58.2	15.3	12,718	79.2	67.9	11.3	1,819	86.5	78.2	8.3
1999	57,965	68.7	50.5	18.2	46,698	72.3	55.4	16.9	5,922	81.1	57.4	23.7	13,201	80.9	65.9	15.1	1,616	87.3	77.1	10.1
Biomedical research																				
1988	28,946	51.9	39.6	12.3	23,819	55.8	44.3	11.5	2,224	62.5	51.1	11.4	3,404	71.9	58.1	13.8	440	68.4	59.3	9.1
1994	32,436	59.8	42.0	17.8	26,945	63.2	46.5	16.7	2,911	71.1	52.0	19.1	4,033	76.4	57.0	19.5	415	78.8	65.1	13.7
1999	31,502	65.5	42.0	23.5	26,657	68.2	46.0	22.2	2,693	75.3	51.8	23.5	4,137	83.5	58.2	25.3	382	81.2	57.3	23.8
Biology																				
1988	14,087	31.4	21.2	10.2	10,626	35.6	24.8	10.8	2,707	33.1	26.6	6.5	276	45.7	34.4	11.2	47	42.6	38.3	4.3
1994	14,609	40.2	24.4	15.8	11,386	43.1	27.4	15.7	2,760	49.5	35.5	13.9	399	60.2	45.4	14.8	66	57.6	50.0	7.6
1999	15,744	52.7	33.0	19.7	11,335	47.5	28.2	19.3	2,076	59.3	38.4	20.9	378	74.9	55.6	19.3	41	80.5	68.3	12.2
Engineering and technology																				
1988	11,990	37.1	26.8	10.3	7,738	44.7	32.8	11.9	3,613	42.6	36.3	6.3	323	55.7	43.7	12.1	55	67.3	58.2	9.1
1994	12,897	44.4	29.7	14.7	8,902	50.5	34.7	15.8	3,685	53.0	43.2	9.8	256	64.1	46.5	17.6	50	76.0	62.0	14.0
1999	10,669	51.4	30.6	20.7	7,760	56.6	35.3	21.3	2,996	64.4	49.1	15.2	177	67.8	48.0	19.8	34	82.4	70.6	11.8

See explanatory notes, if any, and SOURCE at end of table

Appendix table 5-45.

Incidence of multiple corporate authorship of U.S. scientific and technical articles, by field: 1988, 1994, and 1999

Years	All Sectors				Academic				Industry				Non-profit				State and local government			
	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored												
	Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles		
Psychology																				
1988	7,090	37.7	32.9	4.8	6,577	39.4	34.6	4.8	224	64.7	59.4	5.4	451	70.7	66.1	4.7	157	74.5	72.0	2.5
1994	6,189	41.8	34.2	7.6	5,731	43.3	35.8	7.6	159	68.6	59.7	8.8	431	76.3	68.4	7.9	154	63.6	56.5	7.1
1999	5,822	47.8	37.2	10.6	5,494	49.1	38.6	10.6	172	72.7	65.1	7.6	404	77.5	70.5	6.9	102	78.4	71.6	6.9
Social sciences																				
1988	8,592	30.5	23.7	6.8	7,448	33.0	26.1	6.9	336	41.4	39.6	1.8	648	47.8	39.2	8.6	74	58.1	56.8	1.4
1994	8,102	33.6	24.1	9.5	7,054	36.0	26.5	9.5	228	49.1	46.9	2.2	722	54.6	40.7	13.9	88	63.6	58.0	5.7
1999	7,322	35.1	24.1	11.1	6,548	36.3	25.7	10.7	210	55.7	46.2	9.5	611	61.7	43.9	17.8	60	71.7	70.0	1.7
Health and professional fields																				
1988	10,778	34.3	30.9	3.4	8,993	38.2	34.5	3.7	1,063	38.0	36.8	1.2	727	52.8	49.8	3.0	292	56.5	55.1	1.4
1994	10,185	36.6	31.6	5.0	8,695	39.9	34.6	5.4	834	43.9	40.6	3.2	705	56.0	52.3	3.7	271	58.7	56.5	2.2
1999	8,959	40.0	33.5	6.5	7,878	42.6	35.9	6.7	659	54.8	49.9	4.9	712	65.9	61.1	4.8	226	77.4	73.0	4.4

See explanatory notes, if any, and SOURCE at end of table

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Appendix table 5-45.

Incidence of multiple corporate authorship of U.S. scientific and technical articles, by field: 1988, 1994, and 1999

Years	Federal Government				University-administered FFRDCs				Industry-administered FFRDCs				Nonprofit-administered FFRDCs			
	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored
	Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles		
Total science and engineering																
1988	21,893	67.6	57.7	9.9	5,204	63.2	44.4	18.8	1,722	57.5	44.9	12.5	531	46.1	39.9	6.2
1994	22,932	72.9	57.5	15.4	5,813	72.3	43.8	28.5	1,881	71.2	51.5	19.7	673	61.2	45.6	15.6
1999	20,958	78.5	57.0	21.4	6,376	79.5	41.3	38.2	1,908	78.6	51.1	27.5	615	60.3	44.1	16.3
Physics																
1988	1,436	59.1	48.1	10.9	2,639	63.7	42.0	21.7	646	59.1	40.2	18.9	144	39.6	32.6	6.9
1994	1,919	66.9	48.9	18.0	2,944	71.6	38.6	33.1	670	74.6	46.6	28.1	182	50.0	31.9	18.1
1999	1,766	74.3	48.2	26.2	3,116	78.8	35.7	43.0	689	79.7	46.2	33.5	215	52.6	33.5	19.1
Chemistry																
1988	995	48.4	38.4	10.1	454	65.0	49.3	15.6	194	52.6	44.3	8.2	68	26.5	19.1	7.4
1994	1051	57.3	43.5	13.8	423	73.5	51.8	21.7	229	68.1	58.5	9.6	65	43.1	30.8	12.3
1999	813	65.9	46.1	19.8	609	80.0	52.9	27.1	248	72.2	57.3	14.9	134	50.7	37.3	13.4
Earth and space sciences																
1988	1,781	62.8	49.1	13.8	818	68.6	46.7	21.9	72	59.7	52.8	6.9	45	73.3	64.4	8.9
1994	2,326	76.9	52.4	24.5	1,093	77.4	46.2	31.2	83	63.9	56.6	7.2	66	81.8	65.2	16.7
1999	2,547	81.7	51.0	30.6	1,423	83.7	41.6	42.1	87	78.2	60.9	17.2	76	84.2	65.8	18.4
Mathematics																
1988	126	52.4	44.4	7.9	55	63.6	56.4	7.3	25	56.0	44.0	12.0	7	57.1	42.9	14.3
1994	78	64.1	52.6	11.5	39	69.2	48.7	20.5	22	45.5	45.5	0.0	5	40.0	40.0	0.0
1999	85	54.1	41.2	12.9	43	74.4	39.5	34.9	13	69.2	53.8	15.4	0	na	na	na
Clinical medicine																
1988	8,942	79.9	70.6	9.3	186	72.6	62.4	10.2	163	70.6	56.4	41.1	35	82.9	74.3	8.6
1994	8,477	82.9	68.6	14.3	210	81.0	64.3	16.7	177	85.9	59.9	26.0	70	72.9	65.7	7.1
1999	7,805	86.1	66.0	20.1	177	90.4	63.3	27.1	202	86.6	51.5	35.1	33	90.9	72.7	18.2
Biomedical research																
1988	3,749	67.9	54.2	13.7	371	60.6	44.7	15.9	199	65.8	56.8	9.0	49	38.8	34.7	4.1
1994	4,094	74.6	55.1	19.6	375	79.2	54.9	24.3	295	75.6	53.9	21.7	60	75.0	50.0	25.0
1999	3,718	79.0	53.6	25.4	408	85.5	53.7	31.9	297	82.5	53.9	28.6	52	69.2	59.6	9.6
Biology																
1988	995	48.4	38.4	10.1	454	65.0	49.3	15.6	194	52.6	44.3	8.2	68	26.5	19.1	7.4
1994	1,051	57.3	43.5	13.8	423	73.5	51.8	21.7	229	68.1	58.5	9.6	65	43.1	30.8	12.3
1999	813	65.9	46.1	19.8	609	80.0	52.9	27.1	248	72.2	57.3	14.9	134	50.7	37.3	13.4
Engineering and technology																
1988	1,020	54.7	48.4	6.3	578	51.9	40.5	11.4	336	47.0	38.7	8.3	100	51.0	44.0	7.0
1994	1,142	63.0	53.2	9.8	611	59.2	43.0	16.2	347	57.9	46.4	11.5	136	61.0	41.2	19.9
1999	1,006	68.7	56.1	12.6	547	64.4	41.3	23.0	308	75.0	50.3	24.7	85	54.1	41.2	12.9

See explanatory notes, if any, and SOURCE at end of table

Appendix table 5-45.

Incidence of multiple corporate authorship of U.S. scientific and technical articles, by field: 1988, 1994, and 1999

Years	Federal Government				University-administered FFRDCs				Industry-administered FFRDCs				Nonprofit-administered FFRDCs			
	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored	Total articles	Total coauthored	U.S.- coauthored	Internationally coauthored
	Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles			Number	Percent of total articles		
Psychology																
1988	325	71.1	66.8	4.3	2	100.0	100.0	0.0	0	na	na	na	8	62.5	62.5	0.0
1994	277	71.5	64.6	6.9	8	75.0	62.5	12.5	0	na	na	na	5	80.0	80.0	0.0
1999	262	81.7	71.8	9.9	0	na	na	na	1	100.0	100.0	0.0	1	0.0	0.0	0.0
Social sciences																
1988	545	44.0	39.3	4.8	42	47.6	38.1	9.5	2	50.0	50.0	0.0	29	31.0	31.0	0.0
1994	537	43.0	37.1	6.0	34	44.1	32.4	11.8	4	75.0	75.0	0.0	36	58.3	44.4	13.9
1999	369	52.6	43.9	8.7	11	81.8	36.4	45.5	10	60.0	50.0	10.0	4	25.0	25.0	0.0
Health and professional fields																
1988	491	49.5	46.6	2.9	12	75.0	75.0	0.0	1	0.0	0.0	0.0	31	41.9	41.9	0.0
1994	467	54.8	51.0	3.9	6	66.7	66.7	0.0	0	na	na	na	29	69.0	69.0	0.0
1999	384	67.7	59.9	7.8	6	50.0	50.0	0.0	4	75.0	75.0	0.0	6	83.3	83.3	0.0

FFRDCs = Federally Funded Research and Development Centers. na = not applicable.

NOTES: Coauthorships are based on authors' corporate addresses. Sectoral tables do not add to totals because articles are on a whole count basis, where each sector receives a whole count for a multi-authored publications. The whole counting of publications, where each sector and/or country receives an entire count in multiauthored papers, results in higher counts compared to the fractional basis of counting found in other tables.

SOURCES: Institute for Scientific Information, Science Citation Index and Social Science Citation Index; CHI Research, Inc., Science Indicators database; and National Science Foundation.

Appendix table 5-46

Patterns of cross-sectoral coauthorship of U.S. scientific and technical articles, by sector and field: 1988 and 1999

Years	Cross-sectoral authored articles (number)	Academic Sector						
		Percent of cross-sectoral coauthorships with:						
		Industry	Federal Govt.	University FFRDC	Industry FFRDC	Nonprofit FFRDC	Other govt.	Nonprofit
Total science and engineering								
1988	30,160	20.3	35.0	7.3	2.0	0.5	7.2	34.6
1999	35,535	24.9	32.1	9.5	2.6	0.7	5.6	35.7
Physics								
1988	2,945	36.5	7.3	39.0	8.0	1.0	0.0	5.0
1999	3,786	29.7	7.3	42.0	10.0	2.0	0.1	5.1
Chemistry								
1988	1,116	47.6	7.5	18.0	7.0	1.0	0.3	6.3
1999	1,568	43.8	5.4	22.0	8.0	3.0	0.3	7.8
Earth and space sciences								
1988	1,630	22.5	19.1	23.0	2.0	1.0	2.1	20.2
1999	3,059	18.5	20.6	27.0	2.0	2.0	1.9	24.7
Mathematics								
1998	224	42.0	24.1	13.0	6.0	1.0	1.3	16.5
1999	194	47.9	13.4	9.0	4.0	0.0	1.0	25.8
Clinical medicine								
1988	14,190	10.9	38.5	0.7	0.3	0.1	9.7	47.8
1999	15,131	20.2	32.7	0.8	0.5	0.1	7.5	50.8
Biomedical research								
1988	4,580	19.3	12.8	3.0	2.0	0.0	1.9	41.6
1999	5,858	22.2	11.1	4.0	2.0	1.0	1.3	43.5
Biology								
1988	1,116	47.6	25.5	18.0	7.0	1.0	1.1	6.3
1999	1,568	43.8	18.7	22.0	8.0	3.0	1.1	7.8
Engineering and technology								
1988	1,490	56.8	22.8	12.0	6.0	2.0	1.7	6.4
1999	1,902	63.7	21.0	10.0	7.0	1.0	0.8	3.3
Psychology								
1988	806	14.1	25.9	0.0	0.0	1.0	12.9	35.9
1999	642	17.0	28.8	0.0	0.0	0.0	11.7	43.3
Social sciences								
1988	589	19.0	29.4	2.0	0.0	1.0	5.8	38.7
1999	537	15.8	26.8	1.0	1.0	0.0	5.8	48.2
Health and professional fields								
1988	969	29.9	16.3	1.0	0.0	1.0	13.3	30.7
1999	963	27.6	20.4	0.0	0.0	1.0	14.7	39.8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-46

Patterns of cross-sectoral coauthorship of U.S. scientific and technical articles, by sector and field: 1988 and 1999

Years	Cross-sectoral authored articles (number)	Industry Sector						
		Percent of cross-sectoral coauthorships with:						
		Federal Govt.	University FFRDC	Industry FFRDC	Nonprofit FFRDC	Other govt.	Nonprofit	
Total science and engineering								
1988	7,609	80.5	17.1	4.1	1.9	0.6	2.1	10.7
1999	10,755	82.1	17.3	4.1	2.2	0.6	2.4	16.3
Physics								
1988	1,335	57.7	9.5	13.0	4.0	1.0	0.1	1.6
1999	1,422	58.2	13.1	14.0	6.0	1.0	0.0	1.7
Chemistry								
1988	638	59.2	9.7	4.0	2.0	1.0	0.1	3.6
1999	814	55.8	8.9	3.0	3.0	1.0	0.3	3.3
Earth and space sciences								
1988	542	59.6	33.2	9.4	0.2	0.9	3.7	7.7
1999	818	57.1	33.5	11.4	0.9	1.8	4.2	8.2
Mathematics								
1988	108	87.0	4.6	4.0	1.0	1.0	0.0	8.3
1999	100	93.0	8.0	5.0	1.0	0.0	0.0	3.0
Clinical medicine								
1988	1,913	80.7	19.0	0.2	0.9	0.3	4.0	21.7
1999	3,706	82.5	15.8	0.2	0.6	0.1	3.7	30.3
Biomedical research								
1988	1,090	63.7	14.5	2.0	2.0	0.0	1.1	16.4
1999	1,528	64.0	12.0	2.0	2.0	1.0	1.1	21.5
Biology								
1988	638	83.2	13.6	4.0	2.0	1.0	6.2	3.6
1999	814	84.4	13.5	3.0	3.0	1.0	0.5	3.3
Engineering and technology								
1988	1,065	79.5	13.4	4.0	3.0	1.0	0.6	5.7
1999	1,442	84.0	13.1	5.0	4.0	1.0	0.8	2.5
Psychology								
1988	134	85.1	8.2	0.0	0.0	1.0	3.7	6.7
1999	119	91.6	10.1	0.0	0.0	0.0	3.4	24.4
Social sciences								
1988	129	86.8	10.1	1.0	0.0	1.0	3.1	9.3
1999	100	85.0	8.0	1.0	0.0	0.0	5.0	13.0
Health and professional fields								
1988	337	86.1	6.8	1.0	0.0	0.0	3.0	8.0
1999	306	86.9	10.8	0.0	0.0	0.0	4.2	20.3

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-46

Patterns of cross-sectoral coauthorship of U.S. scientific and technical articles, by sector and field: 1988 and 1999

Years	Cross-sectoral authored articles (number)	Federal Government						
		Percent of cross-sectoral coauthorships with:						
		Academia	Industry	University FFRDC	Industry FFRDC	Nonprofit FFRDC	Other govt.	
Total science and engineering								
1988	12,024	87.9	10.8	2.0	1.1	0.3	3.3	10.4
1999	13,150	86.9	14.2	3.7	1.8	0.3	3.4	13.6
Physics								
1988	713	64.4	24.7	10.0	3.0	1.0	0.1	3.2
1999	1,020	61.4	24.9	10.0	4.0	1.0	0.1	2.7
Chemistry								
1988	368	59.1	23.6	2.0	2.0	1.0	0.6	3.8
1999	401	54.7	27.4	5.0	2.0	0.0	0.6	3.7
Earth and space sciences								
1988	913	61.2	22.5	10.0	2.0	1.0	1.4	10.2
1999	1,695	65.9	19.6	17.0	1.0	1.0	1.5	13.8
Mathematics								
1988	58	93.1	8.6	2.0	0.0	0.0	1.7	3.4
1999	33	78.8	24.2	3.0	0.0	0.0	3.0	6.1
Clinical medicine								
1988	5,900	92.7	6.2	0.3	0.6	0.2	4.2	13.0
1999	5,477	90.3	10.7	0.4	1.3	0.2	5.0	19.2
Biomedical research								
1988	1,954	66.8	10.3	1.0	2.0	0.0	1.4	12.1
1999	2,246	68.9	10.9	1.0	3.0	0.0	1.7	13.1
Biology								
1988	368	77.4	23.6	2.0	2.0	1.0	0.8	3.8
1999	401	73.1	27.4	5.0	2.0	0.0	0.7	3.7
Engineering and technology								
1988	466	72.7	30.7	3.0	1.0	0.0	0.6	3.9
1999	561	71.3	33.7	5.0	5.0	1.0	0.5	2.0
Psychology								
1988	219	95.4	5.0	0.0	0.0	0.0	4.1	4.6
1999	191	96.9	6.3	0.0	0.0	0.0	2.6	9.9
Social sciences								
1988	197	87.8	6.6	2.0	0.0	1.0	3.0	10.7
1999	164	87.8	4.9	0.0	1.0	0.0	0.6	17.7
Health and professional fields								
1988	205	77.1	11.2	1.0	0.0	1.0	10.7	12.7
1999	229	85.6	14.4	0.0	0.0	1.0	12.7	20.1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-46

Patterns of cross-sectoral coauthorship of U.S. scientific and technical articles, by sector and field: 1988 and 1999

Years	Cross-sectoral authored articles (number)	Academic FFRDCs					
		Percent of cross-sectoral coauthorships with:					
		Academia	Industry	Federal Govt.	Industry FFRDC	Nonprofit FFRDC	Other govt.
Total science and engineering							
1988	2,578	85.8	12.1	9.2	4.0	0.8	0.3
1999	3,850	87.8	11.3	12.8	4.4	1.2	0.2
Physics							
1988	1,310	87.6	12.7	5.3	5.0	0.0	0.1
1999	1,778	65.5	10.9	4.3	6.0	1.0	0.0
Chemistry							
1988	218	92.2	10.6	2.8	2.0	1.0	0.0
1999	375	69.2	7.5	3.7	4.0	2.0	0.0
Earth and space sciences							
1988	449	82.0	11.4	20.9	1.0	1.0	0.7
1999	972	69.6	9.6	23.4	1.0	1.0	0.3
Mathematics							
1988	33	84.8	12.1	3.0	0.0	0.0	0.0
1999	20	85.0	25.0	5.0	0.0	0.0	0.0
Clinical medicine							
1988	120	87.5	3.3	16.7	4.0	1.0	3.0
1999	130	89.2	6.9	16.9	4.0	0.0	2.3
Biomedical research							
1988	174	83.9	10.3	14.9	3.0	2.0	0.6
1999	277	71.1	10.8	9.2	1.0	1.0	0.0
Biology							
1988	218	92.2	10.6	2.8	2.0	1.0	0.0
1999	375	89.9	7.5	4.8	4.0	2.0	0.0
Engineering and technology							
1988	221	77.4	17.6	7.2	8.0	3.0	0.0
1999	263	73.8	27.4	10.3	11.0	2.0	0.0
Psychology							
1988	2	100.0	0.0	0.0	0.0	0.0	0.0
1999	0	na	na	na	na	na	na
Social sciences							
1988	16	87.5	6.3	18.8	0.0	0.0	0.0
1999	4	75.0	25.0	0.0	0.0	0.0	0.0
Health and professional fields							
1988	9	77.8	22.2	11.1	0.0	0.0	0.0
1999	3	100.0	33.3	33.3	0.0	0.0	33.3

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-46

Patterns of cross-sectoral coauthorship of U.S. scientific and technical articles, by sector and field: 1988 and 1999

Years	Cross-sectoral authored articles (number)	Industry FFRDCs					
		Percent of cross-sectoral coauthorships with:					
		Academia	Industry	Federal Govt.	University FFRDC	Nonprofit FFRDC	Other govt.
Total science and engineering							
1988	825	72.2	17.3	16.6	12.6	1.1	0.2
1999	1,223	75.7	19.4	18.9	13.7	1.5	0.7
Physics							
1988	318	64.9	16.4	6.0	21.0	1.0	0.0
1999	460	69.0	18.9	7.3	22.0	1.0	0.0
Chemistry							
1988	88	70.6	17.0	5.9	6.0	0.0	0.0
1999	156	72.6	14.1	5.0	8.0	6.0	0.0
Earth and space sciences							
1988	36	55.8	2.8	37.2	11.0	3.0	2.3
1999	60	70.6	11.7	13.2	22.0	0.0	2.9
Mathematics							
1988	13	100.0	7.7	0.0	0.0	0.0	0.0
1999	7	100.0	14.3	0.0	0.0	0.0	0.0
Clinical medicine							
1988	81	55.6	21.0	44.4	6.2	0.0	0.0
1999	123	56.1	18.7	59.3	4.1	0.0	1.6
Biomedical research							
1988	119	55.0	18.5	32.1	4.0	1.0	0.0
1999	191	52.7	18.8	26.9	2.0	2.0	1.6
Biology							
1988	88	81.8	17.0	6.8	6.0	0.0	0.0
1999	156	83.3	14.1	5.8	8.0	2.0	0.0
Engineering and technology							
1988	127	66.1	25.2	4.7	13.0	4.0	0.0
1999	187	68.4	31.6	14.4	16.0	4.0	0.0
Psychology							
1988	0	na	na	na	na	na	na
1999	1	100.0	0.0	0.0	0.0	0.0	0.0
Social sciences							
1988	1	100.0	0.0	0.0	0.0	0.0	0.0
1999	5	100.0	0.0	40.0	0.0	0.0	20.0
Health and professional fields							
1988	0	na	na	na	na	na	na
1999	3	100.0	33.3	0.0	0.0	0.0	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-46

Patterns of cross-sectoral coauthorship of U.S. scientific and technical articles, by sector and field: 1988 and 1999

Years	Cross-sectoral authored articles (number)	Nonprofit FFRDCs					
		Percent of cross-sectoral coauthorships with:					
		Academia	Industry	Federal Govt.	University FFRDC	Industry FFRDC	Other govt.
Total science and engineering							
1988	2,494	86.8	6.3	15.8	0.1	0.0	0.0
1999	2,312	85.8	10.9	19.4	0.4	0.1	0.0
Physics							
1988	4	75.0	25.0	25.0	25.0	0.0	0.0
1999	9	100.0	0.0	11.1	0.0	0.0	0.0
Chemistry							
1988	13	60.0	7.7	15.0	0.0	0.0	0.0
1999	28	54.5	14.3	9.1	0.0	0.0	0.0
Earth and space sciences							
1988	102	69.4	22.5	14.8	3.0	1.0	0.0
1999	168	70.6	25.0	18.1	2.0	1.0	0.0
Mathematics							
1988	3	100.0	0.0	33.3	0.0	0.0	0.0
1999	3	66.7	0.0	33.3	0.0	0.0	0.0
Clinical medicine							
1988	1,555	88.4	5.0	16.1	0.0	0.1	0.0
1999	1,296	87.3	10.6	21.1	0.2	0.0	0.0
Biomedical research							
1988	276	83.1	5.4	12.0	0.0	0.0	0.0
1999	268	76.5	8.6	15.8	0.0	2.0	1.0
Biology							
1988	13	92.3	7.7	23.1	0.0	0.0	0.0
1999	28	64.3	14.3	10.7	0.0	0.0	0.0
Engineering and technology							
1988	36	69.4	16.7	8.3	0.0	0.0	0.0
1999	27	59.3	44.4	11.1	0.0	0.0	0.0
Psychology							
1988	113	92.0	4.4	8.0	0.0	0.0	0.0
1999	78	96.2	5.1	6.4	0.0	0.0	0.0
Social sciences							
1988	41	82.9	0.8	14.6	0.0	0.0	0.0
1999	41	75.6	12.2	2.4	0.0	0.0	0.0
Health and professional fields							
1988	159	81.1	6.3	13.8	0.0	0.0	0.0
1999	162	87.7	8.0	17.9	1.0	0.0	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-46

Patterns of cross-sectoral coauthorship of U.S. scientific and technical articles, by sector and field: 1988 and 1999

Years	Cross-sectoral authored articles (number)	Other government					
		Percent of cross-sectoral coauthorships with:					
		Academia	Industry	Federal Govt.	University FFRDC	Industry FFRDC	Nonprofit FFRDC
Total science and engineering							
1988	2,494	86.8	6.3	15.8	0.1	0.0	0.0
1999	2,312	85.8	10.9	19.4	0.4	0.1	0.0
Physics							
1988	4	75.0	25.0	25.0	25.0	0.0	0.0
1999	9	100.0	0.0	11.1	0.0	0.0	0.0
Chemistry							
1988	13	60.0	7.7	15.0	0.0	0.0	0.0
1999	28	54.5	14.3	9.1	0.0	0.0	0.0
Earth and space sciences							
1988	102	69.4	22.5	14.8	3.0	1.0	0.0
1999	168	70.6	25.0	18.1	2.0	1.0	0.0
Mathematics							
1988	3	100.0	0.0	33.3	0.0	0.0	0.0
1999	3	66.7	0.0	33.3	0.0	0.0	0.0
Clinical medicine							
1988	1,555	88.4	5.0	16.1	0.0	0.1	0.0
1999	1,296	87.3	10.6	21.1	0.2	0.0	0.0
Biomedical research							
1988	276	83.1	5.4	12.0	0.0	0.0	0.0
1999	268	76.5	8.6	15.8	0.0	2.0	1.0
Biology							
1988	13	92.3	7.7	23.1	0.0	0.0	0.0
1999	28	64.3	14.3	10.7	0.0	0.0	0.0
Engineering and technology							
1988	36	69.4	16.7	8.3	0.0	0.0	0.0
1999	27	59.3	44.4	11.1	0.0	0.0	0.0
Psychology							
1988	113	92.0	4.4	8.0	0.0	0.0	0.0
1999	78	96.2	5.1	6.4	0.0	0.0	0.0
Social sciences							
1988	41	82.9	0.8	14.6	0.0	0.0	0.0
1999	41	75.6	12.2	2.4	0.0	0.0	0.0
Health and professional fields							
1988	159	81.1	6.3	13.8	0.0	0.0	0.0
1999	162	87.7	8.0	17.9	1.0	0.0	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-46

Patterns of cross-sectoral coauthorship of U.S. scientific and technical articles, by sector and field: 1988 and 1999

Years	Cross-sectoral authored articles (number)	Nonprofit						Other govt.	
		Percent of cross-sectoral coauthorships with:							
		Academia	Industry	Federal Govt.	University FFRDC	Industry FFRDC	Nonprofit FFRDC		
Total science and engineering									
1988	11,441	91.2	7.1	10.9	1.0	0.1	0.0	3.7	
1999	14,059	90.4	12.5	12.8	2.0	1.0	0.0	3.3	
Physics									
1988	187	64.0	11.8	10.1	8.0	1.0	1.0	0.0	
1999	232	65.0	10.3	9.4	14.0	5.0	0.0	0.0	
Chemistry									
1988	100	55.6	23.0	11.1	2.0	0.0	1.0	0.8	
1999	169	43.1	16.0	5.3	1.0	2.0	1.0	2.1	
Earth and space sciences									
1988	413	61.2	10.2	17.3	14.0	1.0	1.0	1.1	
1999	908	61.4	7.4	19.0	21.0	0.0	0.0	0.5	
Mathematics									
1988	43	86.0	20.9	4.7	2.0	0.0	0.0	0.0	
1999	51	98.0	5.9	3.9	2.0	0.0	0.0	2.0	
Clinical medicine									
1988	7,266	93.4	18.8	10.5	0.1	0.1	0.0	4.5	
1999	8,408	91.4	19.1	12.5	0.2	0.1	0.0	3.9	
Biomedical research									
1988	2,083	77.7	8.6	9.7	1.0	1.0	0.0	2.1	
1999	2,782	73.8	11.8	8.5	2.0	1.0	0.0	1.6	
Biology									
1988	100	70.0	23.0	14.0	2.0	0.0	1.0	1.0	
1999	169	72.2	16.0	8.9	1.0	2.0	1.0	3.6	
Engineering and technology									
1988	157	61.1	38.9	11.5	6.0	4.0	0.0	0.6	
1999	100	63.0	36.0	11.0	3.0	3.0	1.0	1.0	
Psychology									
1988	304	95.1	3.0	3.3	0.0	0.0	0.0	3.6	
1999	294	94.6	9.9	6.5	0.0	0.0	0.0	2.7	
Social sciences									
1988	252	90.5	4.8	8.3	0.0	0.0	0.0	1.2	
1999	284	91.2	4.6	10.2	0.0	0.0	0.0	1.1	
Health and professional fields									
1988	347	85.6	7.8	7.5	0.0	0.0	0.0	4.9	
1999	425	90.1	14.6	10.8	0.0	0.0	0.0	7.5	

na = not applicable; FFRDC = Federally Funded Research and Development Center

NOTES: Counts are on a whole count basis; for example, an article with two authors in two sectors is counted as an article in each sector. Because of whole counts, sector shares exceed 100% in fields where there are articles with more than two sectoral authors.

SOURCES: Institute for Scientific Information, Science Citation and Social Science Citation Index; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-47.

Breadth of international coauthorship ties for selected countries: 1986 and 1999

Country/economy	Collaborating countries		Country/economy	Collaborating countries	
	1986	1999		1986	1999
United States	124	160	Venezuela	19	49
United Kingdom	103	144	Singapore	29	49
France	93	141	Malaysia	15	49
Germany	84	133	Tanzania	15	48
Japan	64	119	Morocco	13	47
Canada	81	115	Ethiopia	15	46
Netherlands	64	114	Nigeria	33	45
Australia	64	113	Pakistan	29	45
Italy	56	112	Peru	14	44
Sweden	67	112	Cameroon	5	44
Belgium	58	109	Bangladesh	14	44
Switzerland	63	109	Iran	14	43
India	73	101	Cuba	15	42
Brazil	50	94	Zimbabwe	12	42
Denmark	49	93	Vietnam	8	42
Spain	46	93	Yugoslavia	42	41
China	39	88	Tunisia	16	40
Finland	40	87	Iceland	10	40
Russia	na	86	Costa Rica	15	38
South Africa	39	81	Algeria	16	38
Austria	41	80	Jordan	11	37
Norway	41	80	Lebanon	5	37
Mexico	42	78	Estonia	na	37
Chile	30	77	Byelarus	na	36
South Korea	18	75	Uganda	6	35
Poland	45	73	Kuwait	19	35
Israel	35	71	Cyprus	2	35
Hungary	41	70	Lithuania	na	34
Thailand	32	70	Uzbekistan	na	33
Kenya	35	69	Latvia	na	32
New Zealand	39	69	Ecuador	12	31
Ireland	38	68	Uruguay	7	31
Portugal	19	65	Georgia	na	31
Turkey	21	65	Sri Lanka	16	31
Czech Republic	na	65	Nepal	6	30
Greece	33	64	Bolivia	6	29
Bulgaria	28	64	Jamaica	20	28
Indonesia	21	63	Côte d'Ivoire	9	28
Argentina	36	61	Ghana	11	28
Egypt	50	61	Kazakhstan	na	28
Ukraine	na	59	Guatemala	4	27
Romania	26	58	Zambia	16	27
Slovenia	na	56	Syria	7	24
Philippines	33	56	Panama	7	23
Hong Kong	7	54	Zaire	12	23
Colombia	23	53	Moldova	na	22
Croatia	na	53	Libya	1	21
Slovakia	na	53	Dominican Republic	6	20
Saudia Arabia	23	52	Papua New Guinea	5	20
Taiwan	18	52	Mozambique	4	17

na = not applicable

NOTE: Data are number of countries that have jointly authored papers (based on institutional address) with indicated countries.

SOURCES: Institute for Scientific Information, Science Citation and Social Science Citation Indexes; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-48.
U.S. international scientific collaboration: 1986 and 1999

Region/country or economy	1999			1986		
	Total scientific articles (Number)	Internationally authored articles (Number)	U.S. share of internationally authored articles (Percentage share)	Total scientific articles (Number)	Internationally authored articles (Number)	U.S. share of internationally authored articles (Percentage share)
North America						
Canada	24,498	8,665	51.2	23,207	4,375	53.3
United States	183,906	39,669	na	186,792	17,187	na
Latin America						
Antigua and Barbuda	0	0	na	0	0	na
Argentina	2,974	1,120	30.4	1,584	234	44.0
Bahamas	3	3	100.0	6	5	100.0
Barbados	22	12	50.0	24	8	12.5
Belize	5	5	100.0	2	2	50.0
Bolivia	70	62	19.4	13	12	33.3
Brazil	6,533	2,501	39.7	2,099	594	37.9
Chile	1,263	659	34.6	793	214	46.7
Colombia	367	256	37.9	127	64	45.3
Costa Rica	128	100	45.0	62	32	65.6
Cuba	308	204	7.8	76	37	2.7
Dominica	0	0	na	0	0	na
Dominican Republic	19	19	89.5	18	15	86.7
Ecuador	53	50	58.0	16	10	30.0
El Salvador	1	1	0.0	2	1	100.0
Grenada	3	3	66.7	0	0	na
Guatemala.....	38	38	73.7	22	6	83.3
Guyana	9	8	37.5	6	2	0.0
Haiti	2	2	100.0	10	10	80.0
Honduras	18	12	50.0	5	2	100.0
Jamaica	76	51	60.8	76	33	42.4
Mexico	3,095	1,418	43.3	1,037	310	56.1
Nicaragua.....	19	19	42.1	5	3	33.3
Panama	77	64	60.9	43	28	82.1
Paraguay	8	6	33.3	10	7	14.3
Peru	119	105	50.5	81	49	67.3
St. Kitts and Nevis	1	0	na	0	0	na
St. Lucia	1	1	0.0	0	0	na
St. Vincent	0	0	na	0	0	na
Suriname	7	7	57.1	0	0	na
Trinidad-Tobago	52	27	33.3	55	13	23.1
Uruguay	245	172	25.6	36	11	36.4
Venezuela	641	331	39.0	372	120	48.3
West Indies Associated States	9	7	71.4	7	5	20.0
Sub-Saharan Africa						
Angola	9	8	12.5	0	0	na
Benin	36	27	14.8	0	0	na
Botswana	58	30	23.3	27	4	50.0
Burkina Faso	51	45	13.3	24	16	18.8
Burundi	7	7	0.0	6	3	33.3
Cameroon	109	80	16.3	26	19	21.1
Cape Verde Islands	2	2	0.0	0	0	na
Central African Republic	9	8	12.5	8	6	50.0
Chad Republic	3	2	0.0	1	0	na
Comoros	0	0	na	0	0	na
Congo, Democratic Republic (Zaire)	21	21	61.9	53	41	41.5
Congo, Republic	27	25	36.0	22	12	0.0
Cote Ivoire	75	58	12.1	61	30	16.7
Equatorial Guinea	2	2	0.0	0	0	na
Eritrea	5	5	40.0	0	0	na
Ethiopia	147	90	17.8	54	15	13.3
Gabon Republic	41	33	9.1	21	9	0.0
Gambia	43	39	17.9	0	0	na
Ghana	120	77	37.7	36	19	15.8
Guinea Republic	6	6	16.7	2	2	0.0
Guinea-Bissau	16	16	6.3	1	1	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-48.
U.S. international scientific collaboration: 1986 and 1999

Region/country or economy	1999			1986		
	Total scientific articles (Number)	Internationally authored articles (Number)	U.S. share of internationally authored articles (Percentage share)	Total scientific articles (Number)	Internationally authored articles (Number)	U.S. share of internationally authored articles (Percentage share)
Sub-Saharan Africa						
Kenya	408	263	37.3	308	131	35.9
Lesotho	2	1	0.0	9	5	20.0
Liberia	1	0	na	11	9	44.4
Madagascar	41	34	32.4	15	9	11.1
Malawi	68	53	43.4	30	15	40.0
Mali	24	19	15.8	16	7	28.6
Mauritania	6	6	16.7	4	2	50.0
Mauritius	26	17	23.5	2	0	na
Mozambique	27	20	5.0	14	8	12.5
Namibia	24	19	5.3	0	0	na
Niger	33	22	13.6	15	11	0.0
Nigeria	477	149	21.5	1,070	166	33.7
Rwanda	8	7	0.0	13	9	0.0
Sao Tome and Principe	0	0	na	0	0	na
Senegal Republic	123	93	19.4	0	0	na
Senegambia	0	0	na	104	62	22.6
Seychelles	8	8	62.5	1	1	100.0
Sierra Leone	3	1	0.0	14	6	66.7
Somalia	0	0	na	12	10	0.0
South Africa	2,537	910	31.6	2,839	347	36.6
Sudan	76	57	10.5	124	56	19.6
Swaziland	9	5	0.0	2	0	na
Tanzania	172	134	17.2	109	37	16.2
Togo	18	12	8.3	9	6	0.0
Uganda	105	75	36.0	28	11	36.4
Zambia	50	37	21.6	53	16	31.3
Zimbabwe	141	91	37.4	114	28	32.1
Near East and North Africa						
Algeria	280	208	1.9	117	64	4.7
Bahrain	37	13	7.7	27	6	16.7
Djibouti	1	1	0.0	1	1	0.0
Egypt	1,447	446	34.3	1,229	288	39.9
Iran	719	174	22.4	120	45	42.2
Iraq	26	8	12.5	250	50	26.0
Israel	6,511	2,636	53.2	5,865	1,604	67.7
Jordan	270	120	24.2	145	46	52.2
Kuwait	321	112	17.9	262	66	27.3
Lebanon	138	67	37.3	119	46	43.5
Libya	29	17	11.8	52	17	58.8
Malta	26	9	11.1	4	2	0.0
Morocco	637	460	5.9	114	71	18.3
North Yemen	na	na	na	8	3	33.3
Oman	100	45	15.6	4	4	25.0
Qatar	26	14	7.1	24	12	33.3
Saudi Arabia	635	186	32.8	568	147	35.4
South Yemen	na	na	na	1	1	0.0
Syria	79	41	17.1	24	15	26.7
Tunisia	335	182	7.7	121	80	6.3
United Arab Emirates	161	78	17.9	16	7	14.3
Yemen	18	12	16.7	na	na	na
Western Europe						
Albania	30	20	10.0	0	0	na
Andorra	1	1	0.0	0	0	na
Austria	4,973	2,369	24.4	2,726	687	26.9
Belgium	7,112	3,733	23.5	4,392	1,313	27.6
Bosnia and Hercegovina	15	11	27.3	na	na	na
Croatia	717	290	24.1	na	na	na
Cyprus	83	60	21.7	14	2	0.0
Denmark	5,795	2,813	27.9	4,209	1,025	28.0
Finland	5,266	2,214	28.1	3,151	589	34.3

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-48.
U.S. international scientific collaboration: 1986 and 1999

Region/country or economy	1999			1986		
	Total scientific articles (Number)	Internationally authored articles (Number)	U.S. share of internationally authored articles (Percentage share)	Total scientific articles (Number)	Internationally authored articles (Number)	U.S. share of internationally authored articles (Percentage share)
Western Europe						
France	35,109	13,905	24.8	23,478	4,932	29.0
Germany (East)	na	na	na	4,244	729	4.5
Germany	47,714	18,340	29.8	28,916	5,805	34.7
Greece	2,966	1,250	30.8	1,359	362	42.0
Iceland	208	149	20.8	82	41	36.6
Ireland	1,683	753	24.6	909	243	23.9
Italy	21,715	8,551	31.9	11,465	2,620	36.0
Liechtenstein	20	6	33.3	7	2	0.0
Luxembourg	50	33	9.1	12	5	0.0
Macedonia	53	31	12.9	na	na	na
Monaco	44	34	26.5	19	10	10.0
Netherlands	13,712	5,654	29.6	9,253	1,830	29.6
Norway	3,542	1,589	28.8	2,598	568	29.2
Portugal	2,140	1,129	21.7	460	160	25.0
San Marino	1	1	100.0	0	0	na
Slovenia	802	352	21.3	na	na	na
Spain	15,372	5,569	24.9	5,369	911	29.0
Sweden	11,093	4,887	27.1	8,699	1,935	35.7
Switzerland	10,284	5,385	31.9	6,751	2,174	32.4
Turkey	3,151	704	34.7	454	123	39.8
United Kingdom	49,221	16,806	29.3	41,671	6,554	34.8
Vatican City	3	3	0.0	7	7	57.1
Yugoslavia	663	212	23.6	1,209	368	32.9
Eastern Europe and Central Asia						
Armenia	209	106	24.5	na	na	na
Azerbaijan	84	32	6.3	na	na	na
Bulgaria	1,143	600	14.5	1,302	277	6.1
Byelarus	734	296	14.9	na	na	na
Czech Republic	2,840	1,444	21.7	na	na	na
Czechoslovakia	na	na	na	3,442	591	8.5
Estonia	387	216	14.4	na	na	na
Georgia	167	88	21.6	na	na	na
Hungary	2,859	1,559	27.8	2,280	662	24.6
Kazakhstan	136	55	23.6	na	na	na
Kyrgyzstan	19	14	71.4	na	na	na
Latvia	241	146	11.6	na	na	na
Lithuania	329	197	14.7	na	na	na
Moldova	140	81	6.2	na	na	na
Poland	6,244	2,993	25.3	4,523	967	20.7
Romania	1,161	638	17.6	613	95	17.9
Russia	19,333	6,451	24.9	na	na	na
Slovakia	1,247	626	20.6	na	na	na
Tajikistan	23	6	16.7	na	na	na
Turkmenistan	1	1	0.0	na	na	na
USSR	na	na	na	32,138	1,085	11.5
Ukraine	2,913	1,254	15.8	na	na	na
Uzbekistan	287	89	16.9	na	na	na
Asia						
Afghanistan	0	0	na	5	2	50.0
Bangladesh	231	146	31.5	158	63	42.9
Bhutan	1	1	0.0	0	0	na
Brunei	27	11	18.2	2	1	0.0
Cambodia	9	6	0.0	0	0	na
China	13,815	3,962	30.0	3,342	779	51.3
Hong Kong	2,393	1,053	29.1	92	14	64.3
India	10,272	1,894	37.3	10,426	901	37.0
Indonesia	276	232	27.6	106	61	26.2
Japan	52,711	9,275	42.3	33,278	2,509	55.5
Laos	3	2	0.0	0	0	na

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-48.
U.S. international scientific collaboration: 1986 and 1999

Region/country or economy	1999			1986		
	Total scientific articles (Number)	Internationally authored articles (Number)	U.S. share of internationally authored articles (Percentage share)	Total scientific articles (Number)	Internationally authored articles (Number)	U.S. share of internationally authored articles (Percentage share)
Asia						
Malaysia	618	344	9.9	229	78	24.4
Maldives Republic	3	1	100.0	0	0	na
Mongolia	20	18	44.4	17	13	0.0
Myanmar	16	13	23.1	11	4	50.0
Nepal	70	55	27.3	22	7	28.6
North Korea.....	2	1	0.0	4	4	25.0
Pakistan	359	143	22.4	198	68	36.8
Philippines	282	199	31.2	197	84	53.6
Singapore.....	2,022	678	33.3	416	106	28.3
South Korea	7,772	2,016	57.2	625	193	67.4
Sri Lanka	123	69	23.2	65	23	26.1
Taiwan	6,276	1,168	60.0	1,019	212	66.5
Thailand	718	435	31.5	312	148	33.8
Vietnam	176	141	12.1	56	19	5.3
Pacific Region						
Australia	15,287	4,840	36.7	11,028	1,683	40.0
Fiji	24	18	5.6	35	14	28.6
Kiribati	0	0	na	0	0	na
Marshall Islands	2	1	0.0	0	0	na
Micronesia	2	1	100.0	0	0	na
Nauru	0	0	na	0	0	na
New Zealand	2,981	1,064	36.7	2,211	405	37.8
Papua New Guinea	60	40	22.5	87	31	25.8
Solomon Islands	10	7	14.3	5	3	0.0
Tonga	2	2	0.0	3	2	100.0
Tuvalu	0	0	na	0	0	na
Vanuatu	6	4	25.0	7	6	0.0
Western Samoa	4	2	50.0	2	1	0.0

na = not applicable

NOTES: Article counts are on a whole-count basis where each country author, including the U.S., receives a whole count on internationally coauthored papers. Internationally authored papers consist of papers that have at least one international coauthor.

SOURCES: Institute for Scientific Information, Science Citation and Social Citation Indexes; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-49.
Intraregional scientific collaboration in selected regions: 1986 and 1999
(Percentages)

Western Europe												
Country/ economy	Belgium	Denmark	Finland	France	Germany	Italy	Netherlands	Norway	Spain	Sweden	Switzerland	United Kingdom
Belgium												
1999	na	2.9	2.4	23.8	15.3	9.7	14.0	2.1	5.5	4.6	5.1	15.5
1986	na	1.6	1.2	23.1	11.6	6.9	12.4	0.7	3.0	3.5	6.2	12.0
Change ...	na	1.3	1.1	0.7	3.7	2.8	1.5	1.4	2.4	1.1	-1.1	3.5
Denmark												
1999	3.8	na	5.0	9.6	16.9	8.6	8.2	6.2	5.5	14.6	4.6	19.3
1986	2.0	na	3.5	8.4	13.5	4.0	5.5	5.1	1.4	18.0	4.8	15.4
Change ...	1.8	na	1.5	1.2	3.5	4.6	2.8	1.1	4.1	-3.3	-0.2	3.9
Finland												
1999	4.0	6.4	na	9.5	15.4	7.7	5.9	6.7	3.8	18.3	6.1	15.0
1986	2.7	6.1	na	6.1	13.9	3.9	4.4	4.1	0.5	17.1	5.4	10.4
Change ...	1.3	0.3	na	3.4	1.4	3.8	1.5	2.6	3.3	1.2	0.7	4.7
France												
1999	6.4	1.9	1.5	na	15.1	10.6	4.7	1.4	6.9	3.0	7.2	13.6
1986	6.1	1.7	0.7	na	11.4	8.3	3.7	0.5	4.0	2.8	6.8	10.9
Change ...	0.2	0.2	0.8	na	3.7	2.3	1.0	0.8	2.8	0.2	0.4	2.8
Germany												
1999	3.1	2.6	1.9	11.5	na	7.5	5.8	1.2	4.0	3.7	8.1	12
1986	2.6	2.4	1.4	9.7	na	5.5	5.4	1.1	2.0	3.5	9.4	10.6
Change ..	0.5	0.2	0.4	1.8	na	1.9	0.4	0.1	2.0	0.2	-1.4	1.5
Italy												
1999	4.2	2.8	2.0	17.2	16.0	na	6.0	1.3	7.8	3.9	8.5	16.3
1986	3.5	1.6	0.9	15.6	12.3	na	4.2	0.5	3.2	3.6	8.7	14.5
Change ...	4.2	2.8	2.0	17.2	16.0	na	6.0	1.3	7.8	3.9	8.5	16.3
Netherlands												
1999	9.2	4.1	2.3	11.5	18.7	9.1	na	2.0	5.0	4.8	5.6	19.1
1986	8.9	3.1	1.4	9.9	17.0	6.0	na	1.4	1.9	4.0	5.6	15.7
Change ...	0.3	1.0	0.9	1.6	1.6	3.0	na	0.6	3.1	0.8	-0.1	3.4
Norway												
1999	4.8	11.0	9.3	11.9	14.0	7.0	7.0	na	4.3	20.7	5.5	16.0
1986	1.6	9.2	4.2	4.6	10.9	2.5	4.6	na	0.5	23.4	3.5	15.7
Change ...	3.3	1.8	5.1	7.3	3.1	4.6	2.5	na	3.8	-2.7	2.0	0.3
Spain												
1999	3.7	2.8	1.5	17.1	13.3	12.0	5.1	1.2	na	3.2	4.3	16.8
1986	4.4	1.5	0.3	21.8	13.0	9.1	3.7	0.3	na	2.7	3.8	18.7
Change ...	-0.7	1.2	1.2	-4.7	0.4	2.8	1.3	0.9	na	0.4	0.4	-1.9
Sweden												
1999	3.5	8.4	8.3	8.7	13.8	6.8	5.5	6.7	3.6	na	3.7	14.7
1986	2.4	9.5	5.2	7.2	10.4	4.9	3.8	6.9	1.3	na	5.3	11.4
Change ...	1.1	-1.1	3.1	1.4	3.3	1.9	1.8	-0.1	2.3	na	-1.6	3.4
Switzerland												
1999	3.5	2.4	2.5	18.5	27.5	13.5	5.8	1.6	4.4	3.4	na	14.8
1986	3.8	2.3	1.5	15.4	25.2	10.4	4.7	0.9	1.6	4.7	na	11.8
Change ...	-0.2	0.1	1.1	3.1	2.3	3.0	1.1	0.7	2.8	-1.3	na	3.0
United Kingdom												
1999	3.4	3.2	2.0	11.3	13.1	8.3	6.4	1.5	5.6	4.3	4.7	na
1986	2.4	2.4	0.9	8.2	9.4	5.8	4.4	1.4	2.6	3.4	3.9	na
Change ...	1.0	0.8	1.1	3.1	3.8	2.5	2.0	0.2	3.0	0.9	0.8	na

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-49.
Intraregional scientific collaboration in selected regions: 1986 and 1999
(Percentages)

Asia												
Country/ economy	China	Hong Kong	India	Indonesia	Japan	Malaysia	Philippines	Singapore	South Korea	Taiwanese Economy	Thailand	Vietnam
China												
1999	na	10.8	1.7	0.1	16.4	1.5	0.3	3.0	2.3	2.5	0.4	0.1
1986	na	0.1	0.1	0.4	12.1	0.0	0.1	0.3	0.5	0.8	0.3	0.0
Change ...	na	10.6	1.6	-0.3	4.4	1.5	0.1	2.7	1.8	1.7	0.1	0.1
Hong Kong												
1999	40.6	na	0.9	0.1	3.0	0.6	0.5	2.8	1.0	2.4	0.5	0.0
1986	7.1	na	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change ...	33.4	na	0.9	0.1	-4.1	0.6	0.5	2.8	1.0	2.4	0.5	0.0
India												
1999	3.6	0.5	na	0.4	10.3	3.5	0.7	0.7	1.7	1.8	0.4	0.2
1986	0.1	0.0	na	0.1	7.5	0.2	0.2	0.4	0.1	0.0	0.3	0.0
Change ...	3.5	0.5	na	0.3	2.7	3.3	0.5	0.2	1.6	1.8	0.1	0.2
Indonesia												
1999	1.3	0.4	3.4	na	25.9	0.9	2.2	1.3	0.9	0.4	4.3	2.6
1986	4.9	0.0	1.6	na	23	3.3	1.6	0.0	3.3	0.0	1.6	0.0
Change ...	-3.6	0.4	1.8	na	2.9	-2.4	0.5	1.3	-2.4	0.4	2.7	2.6
Japan												
1999	7.0	0.3	2.1	0.6	na	0.4	0.4	0.3	4.5	1.4	1.0	0.2
1986	3.7	0.0	2.7	0.6	na	0.2	0.7	0.3	1.8	1.5	1.0	0.0
Change ...	3.3	0.3	-0.6	0.1	na	0.1	-0.3	0.0	2.7	-0.1	0.0	0.2
Malaysia												
1999	17.7	1.7	19.5	0.6	9.9	na	0.0	4.4	1.5	0.9	4.4	1.2
1986	0.0	0.0	2.6	2.6	7.7	na	1.3	1.3	2.6	0.0	3.8	0.0
Change ...	17.7	1.7	16.9	-2.0	2.2	na	-1.3	3.1	-1.1	0.9	0.5	1.2
Philippines												
1999	5.0	2.5	7.0	2.5	20.1	0.0	na	0.5	1.0	1.5	9.0	1.5
1986	1.2	0.0	2.4	1.2	21.4	1.2	na	1.2	0.0	2.4	6.0	0.0
Change ...	3.8	2.5	4.7	1.3	-1.3	-1.2	na	-0.7	1.0	-0.9	3.1	1.5
Singapore												
1999	17.6	4.3	1.9	0.4	4.4	2.2	0.1	na	1.8	4.0	1.2	0.4
1986	1.9	0.0	3.8	0	6.6	0.9	0.9	na	0.0	2.8	1.9	0.0
Change ...	15.7	4.3	-1.9	0.4	-2.2	1.3	-0.8	na	1.8	1.2	-0.7	0.4
South Korea												
1999	4.5	0.5	1.6	0.1	20.7	0.2	0.1	0.6	na	1.3	0.3	0.1
1986	2.1	0.0	0.5	1	23.8	1.0	0.0	0.0	na	0.5	0.5	0.0
Change ...	2.4	0.5	1.1	-0.9	-3.1	-0.8	0.1	0.6	na	0.8	-0.2	0.1
Taiwan												
1999	8.4	2.1	3.0	0.1	11.2	0.3	0.3	2.3	2.3	na	0.3	0.1
1986	2.8	0.0	0.0	0	17.5	0.0	0.9	1.4	0.5	na	0.0	0.0
Change ...	5.6	2.1	3.0	0.1	-6.2	0.3	-0.7	0.9	1.8	na	0.3	0.1
Thailand												
1999	3.2	1.1	1.8	2.3	21.6	3.4	4.1	1.8	1.6	0.7	na	3.0
1986	1.4	0.0	2.0	0.7	16.9	2.0	3.4	1.4	0.7	0.0	na	0.0
Change ...	1.9	1.1	-0.2	1.6	4.7	1.4	0.8	0.5	0.9	0.7	na	3.0
Vietnam												
1999	2.8	0.0	2.1	4.3	11.3	2.8	2.1	2.1	2.1	0.7	9.2	na
1986	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	na
Change ...	2.8	0.0	2.1	4.3	11.3	2.8	2.1	2.1	2.1	0.7	9.2	na

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-49.
Intraregional scientific collaboration in selected regions: 1986 and 1999
(Percentages)

Latin America											
Country/ economy	Argentina	Brazil	Chile	Colombia	Costa Rica	Cuba	Mexico	Panama	Peru	Uruguay	Venezuela
Argentina											
1999	na	13.1	3.9	2.6	0.1	0.6	4.9	0.1	0.4	3.0	1.5
1986	na	15.8	2.6	0.0	0.0	0.0	1.3	0.0	0.4	0.4	2.1
Change	na	-2.7	1.4	2.6	0.1	0.6	3.6	0.1	0.0	2.6	-0.6
Brazil											
1999	5.9	na	2.2	1.6	0.3	1.2	2.5	0.1	0.4	0.8	0.9
1986	6.2	na	2.5	0.7	0.3	0.0	1.3	0.2	0.2	0.0	0.2
Change	-0.4	na	-0.3	1.0	0.0	1.2	1.2	-0.1	0.2	0.8	0.7
Chile											
1999	6.7	8.5	na	0.8	0.0	0.8	5.5	0.2	0.2	1.7	1.5
1986	2.8	7.0	na	0.9	0.0	0.0	2.8	0.0	0.0	0.0	0.9
Change	3.9	1.5	na	-0.2	0.0	0.8	2.7	0.2	0.2	1.7	0.6
Colombia											
1999	11.3	16.0	2.0	na	0.8	2.3	13.7	0.8	2.0	0.8	1.6
1986	0.0	6.3	3.1	na	1.6	0.0	3.1	0.0	1.6	0.0	1.6
Change	11.3	9.8	-1.2	na	-0.8	2.3	10.5	0.8	0.4	0.8	0.0
Costa Rica											
1999	1.0	8.0	0.0	2.0	na	0.0	4.0	1.0	1.0	0.0	0.0
1986	0.0	6.3	0.0	3.1	na	0.0	3.1	0.0	0.0	0.0	0.0
Change	1.0	1.8	0.0	-1.1	na	0.0	0.9	1.0	1.0	0.0	0.0
Cuba											
1999	3.4	14.2	2.5	2.9	0.0	na	20.1	0.0	0.5	0.5	3.4
1986	0.0	0.0	0.0	0.0	0.0	na	0.0	0.0	0.0	0.0	0.0
Change	3.4	14.2	2.5	2.9	0.0	na	20.1	0.0	0.5	0.5	3.4
Mexico											
1999	3.9	4.4	2.5	2.5	0.3	2.9	na	0.0	0.3	0.5	0.8
1986	1.0	2.6	1.9	0.6	0.3	0.0	na	0.0	0.0	0.3	0.6
Change	2.9	1.9	0.6	1.8	0.0	2.9	na	0.0	0.3	0.2	0.1
Panama											
1999	1.6	3.1	1.6	3.1	1.6	0.0	0.0	na	0.0	0.0	1.6
1986	0.0	3.6	0.0	0.0	0.0	0.0	0.0	na	0.0	0.0	0.0
Change	1.6	-0.4	1.6	3.1	1.6	0.0	0.0	na	0.0	0.0	1.6
Peru											
1999	4.8	9.5	1.0	4.8	1.0	1.0	3.8	0.0	na	1.0	1.0
1986	2.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	na	0.0	2.0
Change	2.7	7.5	1.0	2.7	1.0	1.0	3.8	0.0	na	1.0	-1.1
Uruguay											
1999	19.8	11.6	6.4	1.2	0.0	0.6	4.1	0.0	0.6	na	1.2
1986	9.1	0.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0	na	0.0
Change	10.7	11.6	6.4	1.2	0.0	0.6	-5.0	0.0	0.6	na	1.2
Venezuela											
1999	5.1	6.6	3.0	1.2	0.0	2.1	3.3	0.3	0.3	0.6	na
1986	4.2	0.8	1.7	0.8	0.0	0.0	1.7	0.0	0.8	0.0	na
Change	1.0	5.8	1.4	0.4	0.0	2.1	1.7	0.3	-0.5	0.6	na

na = not applicable

NOTES: Data are share of indicated countries' internationally coauthored papers with other countries in the same region. Internationally coauthored papers are on a whole-count basis, where each coauthor's country is credited with a whole count. Share percentages may exceed 100% in instances of papers with more than two country authors within the region.

SOURCES: Institute for Scientific Information, Science Citation and Social Citation Indexes; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-50.

Citations by world's scientific papers to scientific literature, by region and country/economy: 1990, 1994, and 1999
 (All fields)

Cited region/country/economy	1990		1994		1999	
	Number	World share (%)	Number	World share (%)	Number	World share (%)
Worldwide						
Total	2,098,342	100.0	2,518,783	100.00	2,749,022	100.00
North America						
Total	1,181,861	56.32	1,368,391	54.33	1,360,447	49.49
Canada	88,705	4.23	106,594	4.23	111,028	4.04
United States	1,093,156	52.10	1,261,797	50.10	1,249,419	45.45
Latin America						
Total	12,214	0.58	16,508	0.66	26,874	0.98
Antigua and Barbuda	1	0.00	0	0.00	0	0.00
Argentina	3,136	0.15	3,623	0.14	5,691	0.21
Bahamas	8	0.00	5	0.00	2	0.00
Barbados	32	0.00	35	0.00	38	0.00
Belize	0	0.00	1	0.00	6	0.00
Bolivia	19	0.00	38	0.00	88	0.00
Brazil	3,437	0.16	5,906	0.23	10,197	0.37
Chile	1,472	0.07	1,766	0.07	2,384	0.09
Colombia	229	0.01	308	0.01	512	0.02
Costa Rica	117	0.01	173	0.01	245	0.01
Cuba	110	0.01	133	0.01	389	0.01
Dominican Republic	13	0.00	15	0.00	14	0.00
Ecuador	18	0.00	53	0.00	108	0.00
El Salvador	3	0.00	4	0.00	5	0.00
Grenada	0	0.00	0	0.00	1	0.00
Guatemala	45	0.00	73	0.00	63	0.00
Guyana	6	0.00	7	0.00	6	0.00
Haiti	14	0.00	22	0.00	5	0.00
Honduras	4	0.00	7	0.00	13	0.00
Jamaica	114	0.01	107	0.00	153	0.01
Mexico	2,243	0.11	2,824	0.11	5,103	0.19
Nicaragua	4	0.00	9	0.00	16	0.00
Panama	124	0.01	183	0.01	217	0.01
Paraguay	11	0.00	14	0.00	13	0.00
Peru	166	0.01	180	0.01	139	0.01
St. Kitts	0	0.00	0	0.00	1	0.00
St. Lucia	0	0.00	11	0.00	5	0.00
St. Vincents	0	0.00	0	0.00	8	0.00
Suriname	0	0.00	1	0.00	2	0.00
Trinidad and Tobago	56	0.00	47	0.00	57	0.00
Uruguay	82	0.00	176	0.01	383	0.01
Venezuela	750	0.04	787	0.03	1,010	0.04
Sub-Saharan Africa						
Total	8,303	0.40	8,771	0.35	8,466	0.31
Angola	0	0.00	3	0.00	1	0.00
Benin	3	0.00	19	0.00	29	0.00
Botswana	24	0.00	30	0.00	32	0.00
Burkina Faso	35	0.00	53	0.00	29	0.00
Burundi	13	0.00	5	0.00	19	0.00
Cameroon	38	0.00	106	0.00	105	0.00
Cape Verde	2	0.00	0	0.00	3	0.00
Central Africa Republic	30	0.00	12	0.00	9	0.00
Chad Republic	0	0.00	2	0.00	4	0.00
Comoros	0	0.00	0	0.00	0	0.00
Congo, Democratic Republic	110	0.01	69	0.00	31	0.00
Congo, Republic	38	0.00	44	0.00	15	0.00
Côte d'Ivoire	65	0.00	113	0.00	102	0.00

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-50.

Citations by world's scientific papers to scientific literature, by region and country/economy: 1990,**1994, and 1999**

(All fields)

Cited region/country/economy	1990		1994		1999	
	Number	World share (%)	Number	World share (%)	Number	World share (%)
Sub-Saharan Africa						
Djibouti	1	0.00	6	0.00	1	0.00
Equatorial Guinea	0	0.00	0	0.00	1	0.00
Eritrea	0	0.00	0	0.00	1	0.00
Ethiopia	104	0.00	140	0.01	149	0.01
Gabon Republic	40	0.00	46	0.00	59	0.00
Gambia	0	0.00	0	0.00	179	0.01
Ghana	30	0.00	66	0.00	97	0.00
Guinea Republic	4	0.00	3	0.00	8	0.00
Guinea-Bissau	2	0.00	7	0.00	17	0.00
Kenya	797	0.04	634	0.03	695	0.03
Lesotho	4	0.00	5	0.00	1	0.00
Liberia	17	0.00	23	0.00	6	0.00
Madagascar	10	0.00	25	0.00	37	0.00
Malawi	45	0.00	44	0.00	89	0.00
Mali	12	0.00	19	0.00	47	0.00
Mauritania	1	0.00	1	0.00	2	0.00
Mauritius	1	0.00	10	0.00	8	0.00
Mozambique	13	0.00	9	0.00	16	0.00
Namibia	0	0.00	25	0.00	29	0.00
Niger	13	0.00	43	0.00	49	0.00
Nigeria	714	0.03	598	0.02	406	0.01
Rwanda	31	0.00	38	0.00	22	0.00
Sao Tome and Principe	0	0.00	0	0.00	0	0.00
Senegal	0	0.00	0	0.00	236	0.01
Seychelles	0	0.00	3	0.00	18	0.00
Sierra Leone	23	0.00	17	0.00	13	0.00
Somalia	10	0.00	12	0.00	3	0.00
South Africa	5,656	0.27	5,930	0.24	5,170	0.19
Sudan	84	0.00	120	0.00	86	0.00
Swaziland	2	0.00	7	0.00	7	0.00
Tanzania	88	0.00	155	0.01	256	0.01
Togo	6	0.00	13	0.00	11	0.00
Uganda	30	0.00	35	0.00	110	0.00
Zambia	39	0.00	57	0.00	62	0.00
Zimbabwe	168	0.01	224	0.01	196	0.01
Near East and North Africa						
Total	21,605	1.03	23,993	0.95	28,854	1.05
Algeria	112	0.01	156	0.01	184	0.01
Bahrain	29	0.00	36	0.00	32	0.00
Egypt	1,225	0.06	1,444	0.06	1,700	0.06
Iran	112	0.01	204	0.01	657	0.02
Iraq	209	0.01	98	0.00	20	0.00
Israel	17,930	0.85	19,859	0.79	23,444	0.85
Jordan	187	0.01	175	0.01	181	0.01
Kuwait	438	0.02	309	0.01	333	0.01
Lebanon	60	0.00	50	0.00	108	0.00
Libya	48	0.00	25	0.00	23	0.00
Morocco	104	0.00	204	0.01	472	0.02
North Yemen	3	0.00	19	0.00	0	0.00
Oman	6	0.00	42	0.00	67	0.00
Qatar	27	0.00	42	0.00	21	0.00
Saudi Arabia	955	0.05	973	0.04	1,014	0.04
South Yemen	1	0.00	3	0.00	0	0.00
Syria	35	0.00	88	0.00	86	0.00
Tunisia	108	0.01	183	0.01	287	0.01
United Arab Emirates	16	0.00	83	0.00	214	0.01

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-50.

Citations by world's scientific papers to scientific literature, by region and country/economy: 1990,**1994, and 1999**

(All fields)

Cited region/country/economy	1990		1994		1999	
	Number	World share (%)	Number	World share (%)	Number	World share (%)
Western Europe						
Total	629,039	29.98	790,820	31.40	939,901	34.19
Albania	0	0.00	10	0.00	20	0.00
Andorra	0	0.00	0	0.00	1	0.00
Austria	7,736	0.37	11,074	0.44	15,818	0.58
Belgium	16,170	0.77	20,078	0.80	23,840	0.87
Bosnia	0	0.00	0	0.00	18	0.00
Croatia	0	0.00	0	0.00	1,131	0.04
Cyprus	16	0.00	17	0.00	93	0.00
Denmark	16,538	0.79	20,027	0.80	21,962	0.80
Finland	11,383	0.54	14,883	0.59	20,584	0.75
France	88,890	4.24	112,437	4.46	131,443	4.78
Germany (East)	6,182	0.29	3,568	0.14	0	0.00
Germany	115,261	5.49	151,407	6.01	191,198	6.96
Greece	2,432	0.12	3,650	0.14	5,730	0.21
Iceland	265	0.01	334	0.01	584	0.02
Ireland	2,399	0.11	3,589	0.14	4,773	0.17
Italy	38,844	1.85	57,241	2.27	76,520	2.78
Liechtenstein	15	0.00	17	0.00	30	0.00
Luxemborg	15	0.00	21	0.00	80	0.00
Macedonia	0	0.00	0	0.00	82	0.00
Malta	2	0.00	10	0.00	34	0.00
Monaco	45	0.00	75	0.00	89	0.00
Netherlands	42,953	2.05	56,780	2.25	65,292	2.38
Norway	8,229	0.39	9,624	0.38	11,114	0.40
Portugal	962	0.05	1,768	0.07	3,313	0.12
San Marino	0	0.00	1	0.00	1	0.00
Slovenia	0	0.00	0	0.00	1,352	0.05
Spain	14,443	0.69	26,313	1.04	44,577	1.62
Sweden	39,019	1.86	44,082	1.75	46,742	1.70
Switzerland	35,619	1.70	42,136	1.67	49,236	1.79
Turkey	755	0.04	1,333	0.05	3,512	0.13
United Kingdom	178,765	8.52	207,565	8.24	219,866	8.00
Vatican	6	0.00	4	0.00	5	0.00
Yugoslavia	2,095	0.10	2,776	0.11	861	0.03
Eastern Europe						
Total	42,145	2.01	49,609	1.97	56,488	2.05
Armenia	0	0.00	0	0.00	179	0.01
Azerbaijan	0	0.00	0	0.00	59	0.00
Bulgaria	1,174	0.06	1,637	0.06	1,669	0.06
Byelarus	0	0.00	0	0.00	715	0.03
Czech Republic	0	0.00	0	0.00	4,754	0.17
Czechoslovakia	4,299	0.20	5,496	0.22	2	0.00
Estonia	0	0.00	0	0.00	649	0.02
Georgia	0	0.00	0	0.00	149	0.01
Hungary	4,171	0.20	4,575	0.18	5,372	0.20
Kazakhstan	0	0.00	0	0.00	76	0.00
Kyrgyzstan	0	0.00	0	0.00	12	0.00
Latvia	0	0.00	0	0.00	340	0.01
Lithuania	0	0.00	0	0.00	490	0.02
Moldova	0	0.00	0	0.00	122	0.00
Poland	7,331	0.35	8,329	0.33	10,380	0.38
Romania	486	0.02	594	0.02	1,128	0.04
Russia	0	0.00	0	0.00	25,431	0.93
Slovakia	0	0.00	0	0.00	1,892	0.07
Tajikistan	0	0.00	0	0.00	15	0.00
Turkmenistan	0	0.00	0	0.00	3	0.00
USSR	24,684	1.18	28,978	1.15	0	0.00

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-50.

Citations by world's scientific papers to scientific literature, by region and country/economy: 1990, 1994, and 1999
 (All fields)

Cited region/country/economy	1990		1994		1999	
	Number	World share (%)	Number	World share (%)	Number	World share (%)
Ukraine	0	0.00	0	0.00	2,877	0.10
Uzbekistan	0	0.00	0	0.00	174	0.01
Asia						
Total	153,294	7.31	208,603	8.28	263,941	9.60
Afghanistan	1	0.00	1	0.00	0	0.00
Bangladesh	221	0.01	203	0.01	286	0.01
Bhutan	0	0.00	1	0.00	0	0.00
Brunei	6	0.00	5	0.00	20	0.00
Cambodia	0	0.00	0	0.00	2	0.00
China	4,666	0.22	8,660	0.34	15,846	0.58
Hong Kong	1,309	0.06	2,445	0.10	5,793	0.21
India	12,046	0.57	15,179	0.60	16,928	0.62
Indonesia	119	0.01	168	0.01	338	0.01
Japan	128,642	6.13	167,901	6.67	194,341	7.07
Laos	0	0.00	1	0.00	3	0.00
Malaysia	277	0.01	400	0.02	631	0.02
Mongolia	5	0.00	15	0.00	50	0.00
Myanmar	34	0.00	28	0.00	16	0.00
North Korea	7	0.00	1	0.00	0	0.00
Nepal	18	0.00	61	0.00	65	0.00
Pakistan	257	0.01	344	0.01	389	0.01
Philippines	350	0.02	315	0.01	508	0.02
South Korea	1,335	0.06	3,462	0.14	11,271	0.41
Singapore	689	0.03	1,700	0.07	3,052	0.11
Sri Lanka	179	0.01	151	0.01	126	0.00
Taiwan	2,626	0.13	6,773	0.27	13,267	0.48
Thailand	507	0.02	789	0.03	1,009	0.04
Pacific						
Total	49,881	2.38	52,088	2.07	64,051	2.33
Australia	42,416	2.02	44,066	1.75	54,589	1.99
Fiji	43	0.00	16	0.00	12	0.00
Kiribati	0	0.00	0	0.00	0	0.00
Maldives	0	0.00	0	0.00	3	0.00
Marsh Islands	0	0.00	1	0.00	8	0.00
Micronesia	0	0.00	0	0.00	5	0.00
New Zealand	7,220	0.34	7,796	0.31	9,141	0.33
Nauru	1	0.00	0	0.00	0	0.00
Papau New Guinea	148	0.01	97	0.00	101	0.00
Solom Islands	5	0.00	13	0.00	4	0.00
Tonga	0	0.00	4	0.00	1	0.00
Tuvalu	0	0.00	0	0.00	0	0.00
Vanuatu	3	0.00	4	0.00	5	0.00
Vietnam	43	0.00	88	0.00	181	0.01
Western Samoa	2	0.00	3	0.00	1	0.00

NOTES: Citations are on the basis of a three-year window with a two-year lag; for example, 1999 citations counts are articles published in 1999 citing articles published in 1995-97. Nationality of the cited paper is determined by the institutional address of the cited paper.

Germany has citation data to unified Germany starting in 1992, and citation data to former West Germany prior to 1992. Former USSR consist of present East European and Central Asian countries that were former members.

SOURCES: Institute for Scientific Information, Science Citation and Social Citation Indexes; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-51.

Relative prominence of scientific and technical literature, by region: 1990–99
 (Relative Citation Indexes¹)

Year	United States	Latin America	Sub-Saharan Africa	Near East and North Africa	Western Europe	Eastern Europe	East Asia NIEs	Asia and Pacific
United States								
1990	1.84	0.29	0.24	0.46	0.60	0.07	0.26	0.44
1991	1.85	0.29	0.23	0.45	0.60	0.07	0.27	0.44
1992	1.85	0.28	0.24	0.44	0.61	0.08	0.28	0.44
1993	1.84	0.28	0.23	0.45	0.62	0.09	0.29	0.43
1994	1.85	0.28	0.24	0.46	0.63	0.10	0.30	0.43
1995	1.86	0.28	0.23	0.46	0.63	0.11	0.29	0.42
1996	1.88	0.31	0.24	0.47	0.63	0.12	0.28	0.42
1997	1.88	0.31	0.23	0.46	0.63	0.12	0.28	0.42
1998	1.92	0.30	0.24	0.46	0.63	0.13	0.28	0.42
1999	1.94	0.31	0.24	0.47	0.64	0.13	0.29	0.43
Latin America								
1990	1.04	16.95	0.74	0.66	0.81	0.16	0.41	0.57
1991	1.03	16.32	0.69	0.64	0.86	0.14	0.48	0.56
1992	1.02	15.72	0.69	0.65	0.85	0.17	0.45	0.57
1993	1.01	15.37	0.71	0.63	0.85	0.19	0.43	0.55
1994	1.03	13.95	0.73	0.67	0.86	0.22	0.47	0.54
1995	1.01	13.31	0.70	0.68	0.88	0.23	0.43	0.55
1996	1.04	12.83	0.77	0.57	0.87	0.26	0.49	0.52
1997	0.98	12.86	0.70	0.62	0.88	0.27	0.51	0.57
1998	1.02	11.87	0.73	0.66	0.86	0.30	0.45	0.54
1999	0.97	11.39	0.72	0.65	0.87	0.32	0.50	0.57
Sub-Saharan Africa								
1990	0.82	0.85	28.51	0.75	0.82	0.07	0.60	0.65
1991	0.82	0.99	28.92	0.62	0.83	0.11	0.73	0.64
1992	0.86	0.81	28.21	0.72	0.86	0.09	0.63	0.61
1993	0.83	0.75	29.96	0.93	0.85	0.16	0.48	0.58
1994	0.83	0.97	28.52	0.85	0.88	0.19	0.65	0.62
1995	0.82	0.94	31.30	0.82	0.88	0.14	0.53	0.58
1996	0.88	1.01	30.28	0.75	0.86	0.17	0.48	0.58
1997	0.83	0.93	29.77	0.86	0.92	0.22	0.55	0.60
1998	0.89	0.97	29.90	0.79	0.90	0.21	0.42	0.60
1999	0.85	0.93	31.98	0.67	0.91	0.20	0.54	0.62
Near East and North Africa								
1990	1.15	0.43	0.51	12.81	0.74	0.11	0.45	0.51
1991	1.14	0.47	0.50	12.62	0.75	0.14	0.45	0.50
1992	1.16	0.36	0.60	11.89	0.75	0.15	0.40	0.55
1993	1.16	0.39	0.50	12.02	0.77	0.18	0.43	0.50
1994	1.14	0.42	0.62	11.84	0.80	0.22	0.43	0.50
1995	1.13	0.48	0.47	11.93	0.81	0.22	0.44	0.50
1996	1.13	0.49	0.47	11.47	0.82	0.24	0.49	0.52
1997	1.12	0.48	0.62	11.33	0.81	0.25	0.46	0.52
1998	1.09	0.52	0.63	11.36	0.83	0.28	0.54	0.54
1999	1.08	0.57	0.51	11.26	0.83	0.30	0.52	0.56
Western Europe								
1990	0.98	0.34	0.32	0.49	1.61	0.13	0.32	0.52
1991	1.00	0.33	0.32	0.47	1.60	0.13	0.33	0.51
1992	1.00	0.35	0.34	0.47	1.59	0.14	0.32	0.52
1993	1.00	0.34	0.34	0.48	1.57	0.15	0.33	0.51
1994	1.01	0.35	0.35	0.49	1.55	0.17	0.35	0.51
1995	1.01	0.36	0.35	0.51	1.52	0.19	0.35	0.51

¹Relative prominence of scientific literature is measured on the basis of the relative citation index of the region. This index is the share of the country/region's share of cited literature adjusted for its share of published literature. An index of 1.00 would indicate that the region's share of cited literature is equal to the region's world share of scientific literature. An index greater (less) than 1.00 would indicate that the region is cited relatively more (less) frequently than is indicated by the region's share of scientific literature.

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-51.

Relative prominence of scientific and technical literature, by region: 1990–99
 (Percentages)

Year	United States	Latin America	Sub-Saharan Africa	Near East and North Africa	Western Europe	Eastern Europe	East Asia NIEs	Asia and Pacific
1996	1.01	0.38	0.35	0.50	1.51	0.20	0.34	0.50
1997	1.00	0.39	0.38	0.50	1.49	0.22	0.35	0.50
1998	1.01	0.38	0.39	0.50	1.47	0.24	0.34	0.50
1999	1.02	0.39	0.39	0.50	1.46	0.25	0.33	0.50
Eastern Europe								
1990	0.78	0.40	0.22	0.52	0.83	3.54	0.43	0.63
1991	0.80	0.44	0.23	0.59	0.85	3.36	0.36	0.65
1992	0.78	0.42	0.21	0.51	0.85	3.51	0.37	0.63
1993	0.79	0.42	0.22	0.53	0.87	3.51	0.44	0.62
1994	0.78	0.47	0.23	0.52	0.90	3.55	0.41	0.60
1995	0.79	0.43	0.21	0.51	0.90	3.81	0.40	0.60
1996	0.79	0.53	0.27	0.59	0.92	3.88	0.39	0.56
1997	0.77	0.50	0.26	0.60	0.93	4.07	0.40	0.58
1998	0.79	0.55	0.28	0.59	0.93	4.11	0.43	0.58
1999	0.78	0.51	0.25	0.63	0.93	4.27	0.45	0.57
East Asia NIEs								
1990	1.07	0.39	0.36	0.62	0.76	0.11	27.73	1.02
1991	1.15	0.53	0.43	0.61	0.69	0.10	22.59	0.97
1992	1.14	0.50	0.42	0.56	0.71	0.11	19.56	0.96
1993	1.12	0.44	0.36	0.57	0.71	0.14	18.75	0.88
1994	1.11	0.38	0.34	0.57	0.72	0.15	15.58	0.94
1995	1.13	0.45	0.32	0.59	0.71	0.17	13.04	0.93
1996	1.12	0.39	0.32	0.54	0.71	0.18	11.68	0.90
1997	1.07	0.39	0.32	0.60	0.73	0.19	10.35	0.93
1998	1.08	0.42	0.35	0.62	0.69	0.20	9.63	0.92
1999	1.10	0.41	0.33	0.63	0.69	0.23	8.36	0.91
Asia and Pacific								
1990	0.95	0.33	0.31	0.42	0.68	0.10	0.49	2.92
1991	0.96	0.35	0.29	0.43	0.69	0.11	0.51	2.85
1992	0.95	0.31	0.31	0.41	0.69	0.11	0.51	2.83
1993	0.97	0.31	0.31	0.40	0.71	0.13	0.50	2.71
1994	0.96	0.33	0.30	0.43	0.70	0.13	0.54	2.69
1995	0.97	0.32	0.29	0.43	0.71	0.15	0.53	2.59
1996	0.97	0.33	0.30	0.44	0.71	0.17	0.53	2.53
1997	0.99	0.35	0.29	0.44	0.71	0.18	0.55	2.45
1998	0.98	0.35	0.32	0.44	0.70	0.19	0.61	2.42
1999	0.99	0.37	0.31	0.47	0.70	0.21	0.67	2.37
Worldwide								
1990	1.36	0.48	0.41	0.61	0.97	0.22	0.48	0.74
1991	1.38	0.47	0.40	0.59	0.97	0.21	0.48	0.73
1992	1.37	0.46	0.42	0.58	0.97	0.22	0.48	0.74
1993	1.36	0.46	0.42	0.60	0.98	0.22	0.51	0.72
1994	1.36	0.47	0.43	0.60	0.98	0.24	0.53	0.73
1995	1.35	0.47	0.41	0.62	0.98	0.26	0.52	0.72
1996	1.35	0.51	0.41	0.61	0.98	0.27	0.52	0.71
1997	1.34	0.53	0.42	0.61	0.99	0.29	0.52	0.71
1998	1.35	0.53	0.44	0.61	0.98	0.31	0.52	0.72
1999	1.35	0.55	0.44	0.63	0.98	0.33	0.54	0.73

NOTES: East Asia NIEs (newly industrialized economies) are Taiwan, Singapore, South Korea, and Hong Kong. Asia and Pacific exclude East Asian NIEs.

SOURCES: Institute for Scientific Information, Science and Social Citation Indexes; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-52.

Relative prominence of scientific literature by country/economy and field: 1990, 1994, and 1999
 (Relative Citation Indexes¹)

Country/economy	All fields			Country/economy	Biology			Country/economy	Biomedical research		
	1990	1994	1999		1990	1994	1999		1990	1994	1999
1 Switzerland	1.46	1.41	1.37	Switzerland	1.14	1.30	1.41	United States	1.46	1.43	1.40
2 United States	1.36	1.36	1.35	Sweden	1.40	1.27	1.30	Switzerland	1.58	1.37	1.40
3 Netherlands	1.13	1.13	1.12	United Kingdom	1.14	1.15	1.25	Germany	1.04	1.05	1.00
4 Sweden	1.14	1.11	1.07	Denmark	1.03	1.19	1.21	Israel	0.90	0.94	0.99
5 Denmark	1.03	1.06	1.04	Netherlands	1.13	1.27	1.19	United Kingdom	1.07	1.06	0.98
6 United Kingdom	1.06	1.08	1.04	Norway	1.06	1.00	1.18	Canada	0.82	0.86	0.91
7 Finland	0.89	0.94	1.02	Finland	0.86	1.02	1.17	Netherlands	0.96	0.92	0.89
8 Germany	0.99	1.00	1.01	United States	1.20	1.21	1.16	Sweden	1.01	0.88	0.87
9 Canada	0.93	0.95	0.99	Belgium	0.85	0.95	1.14	Finland	0.73	0.75	0.86
10 Belgium	0.98	0.99	0.95	France	0.93	0.94	1.11	Austria	0.75	0.83	0.83
11 France	0.94	0.98	0.93	Germany	1.11	1.04	1.08	France	0.88	0.89	0.82
12 Austria	0.74	0.81	0.91	Hong Kong	na	na	1.08	Belgium	0.83	0.83	0.80
13 Italy	0.81	0.85	0.88	Chile	0.84	0.67	1.06	Australia	0.85	0.72	0.78
14 Australia	0.94	0.84	0.87	Canada	1.08	1.08	1.05	Japan	0.85	0.83	0.78
15 Israel	0.80	0.82	0.84	Austria	0.86	0.74	1.04	Denmark	0.83	0.80	0.77
16 Japan	0.87	0.86	0.83	Australia	1.10	1.06	1.04	Singapore	na	0.72	0.75
17 Ireland	0.69	0.83	0.82	Ireland	0.75	0.94	0.99	Norway	0.63	0.65	0.67
18 Norway	0.81	0.79	0.82	Philippines	0.69	0.51	0.98	Italy	0.60	0.61	0.62
19 Spain	0.62	0.70	0.79	Israel	0.88	0.98	0.92	Ireland	0.58	0.59	0.57
20 New Zealand	0.80	0.74	0.76	Spain	0.71	0.71	0.92	New Zealand	0.69	0.57	0.57
21 Portugal	na	0.57	0.64	New Zealand	0.79	0.88	0.89	Spain	0.42	0.50	0.55
22 Hong Kong	0.63	0.59	0.62	Hungary	0.56	0.70	0.87	Hungary	0.34	0.38	0.51
23 Hungary	0.51	0.54	0.60	Colombia	na	0.75	0.85	South Korea	na	0.37	0.49
24 Slovenia	na	na	0.58	Italy	0.82	0.78	0.85	Chile	0.36	0.37	0.46
25 Argentina	0.47	0.48	0.55	Portugal	na	0.80	0.81	Portugal	na	0.42	0.46
26 Chile	0.49	0.45	0.55	Japan	0.80	0.79	0.79	Greece	0.37	0.39	0.45
27 Brazil	0.42	0.44	0.54	South Korea	na	0.72	0.74	Hong Kong	na	na	0.45
28 Mexico	0.55	0.52	0.54	Taiwan	0.52	0.64	0.70	Taiwan	0.47	0.51	0.44
29 Greece	0.43	0.47	0.53	Kenya	0.69	0.50	0.69	Mexico	0.44	0.37	0.42
30 Singapore	na	0.54	0.53	Brazil	0.62	0.52	0.62	Argentina	0.29	0.33	0.35
31 South Korea	0.45	0.49	0.53	Argentina	0.55	0.64	0.61	Poland	0.29	0.26	0.34
32 Taiwan	0.50	0.52	0.52	South Africa	0.65	0.67	0.61	China	0.19	0.18	0.33
33 South Africa	0.47	0.49	0.48	Czech Republic	na	na	0.61	Brazil	0.28	0.25	0.31
34 Poland	0.41	0.43	0.47	Singapore	na	0.71	0.60	South Africa	0.34	0.32	0.30
35 Czech Republic	na	na	0.45	Turkey	na	0.56	0.58	Czech Republic	na	na	0.29
36 Croatia	na	na	0.40	Thailand	0.39	0.58	0.58	Slovakia	na	na	0.25
37 China	0.30	0.32	0.38	Poland	0.49	0.50	0.57	Bulgaria	0.07	0.08	0.22
38 India	0.28	0.32	0.37	Greece	0.56	0.61	0.56	Turkey	na	na	0.21
39 Turkey	0.36	0.31	0.35	Mexico	0.66	0.64	0.55	India	0.14	0.18	0.21
40 Bulgaria	0.23	0.28	0.35	Slovakia	na	na	0.55	Ukraine	na	na	0.19
41 Slovakia	na	na	0.35	China	0.51	0.51	0.50	Russia	na	na	0.15
42 Saudi Arabia	0.39	0.32	0.29	Malaysia	0.36	0.52	0.50	Egypt	na	na	0.13
43 Romania	0.24	0.25	0.29	Saudi Arabia	0.48	0.45	0.47				
44 Egypt	0.25	0.22	0.27	Venezuela	na	0.54	0.45				
45 Russia	na	na	0.27	India	0.36	0.40	0.42				
46 Belarus	na	na	0.23	Estonia	na	na	0.41				
47 Ukraine	na	na	0.23	Egypt	0.35	0.28	0.40				
48 Pakistan	0.52	0.42	0.40								
49 Ethiopia	na	na	0.39								
50 Bulgaria	na	0.67	0.35								
Country/economy	Chemistry			Country/economy	Clinical medicine			Country/economy	Earth and space		
	1990	1994	1999		1990	1994	1999		1990	1994	1999

1 United States	1.64	1.62	1.50	United States	1.33	1.31	1.27	United States	1.3	1.35	1.31
2 Switzerland	1.47	1.49	1.45	Canada	1.02	1.05	1.11	Chile	1.23	1.23	1.21
3 Netherlands	1.31	1.43	1.41	Netherlands	1.04	1.07	1.08	Switzerland	1.31	1.29	1.16
4 Israel	1.23	1.17	1.33	Switzerland	1.07	1.13	1.08	Netherlands	1.12	1.03	1.14
5 Sweden	1.31	1.53	1.33	Finland	0.85	0.93	1.03	Germany	1.09	0.97	1.11
6 Canada	1.32	1.34	1.30	United Kingdom	1.02	1.04	1.00	United Kingdom	1.08	1.07	1.03
7 Hong Kong	1.26	1.02	1.23	Sweden	0.95	1.00	0.99	France	0.99	1.04	0.93
8 Denmark	1.20	1.25	1.20	Denmark	0.88	0.92	0.94	Canada	1.04	1.02	0.89
9 United Kingdom	1.18	1.15	1.14	Belgium	0.99	0.99	0.92	Italy	0.79	0.94	0.89
10 Germany	1.23	1.16	1.07	Australia	1.00	0.87	0.91	Australia	1.05	0.95	0.88
11 Belgium	0.87	0.97	1.06	Italy	0.75	0.84	0.90	Norway	0.9	0.86	0.86
12 Italy	1.03	1.08	1.05	France	0.80	0.85	0.87	Israel	0.63	0.81	0.85

¹Relative prominence of scientific literature is measured on the basis of the relative citation index of the country. This index is the country's share of cited literature adjusted for its share of published literature. An index of 1.00 would indicate that the country's share of cited literature is equal to the country's world share of scientific literature. An index greater (less) than 1.00 would indicate that the country is cited relatively more (less) than is indicated by the country's share of scientific literature. Countries with less than a 0.10 percent share of world publications in the cited field and were cited at less than 0.10 percent share of cited literature over the period are excluded or are marked na.

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-52.

Relative prominence of scientific literature by country/economy and field: 1990, 1994, and 1999
 (Relative Citation Indexes¹)

Country/economy	Chemistry			Clinical medicine			Earth and space				
	1990	1994	1999	Country/economy	1990	1994	1999	Country/economy	1990	1994	1999
13 Spain	0.77	0.88	1.05	Ireland	0.69	0.89	0.87	Denmark	0.85	0.88	0.85
14 Australia	1.24	1.10	1.05	New Zealand	0.93	0.83	0.86	Japan	0.82	0.75	0.83
15 New Zealand	1.23	1.00	1.00	Germany	0.73	0.74	0.83	Spain	0.69	0.7	0.78
16 Japan	1.08	0.99	0.99	Norway	0.83	0.77	0.82	Sweden	1.05	0.94	0.78
17 Ireland	1.20	1.06	0.98	Austria	0.64	0.70	0.81	Belgium	0.69	0.77	0.75
18 Singapore	na	0.96	0.97	Japan	0.77	0.78	0.76	Brazil	0.51	0.51	0.73
19 Austria	0.80	0.91	0.96	Spain	0.63	0.69	0.74	Mexico	0.45	0.63	0.71
20 France	1.01	0.98	0.96	Thailand	na	na	0.67	New Zealand	0.81	0.72	0.71
21 Finland	0.68	0.91	0.94	Portugal	na	na	0.64	Ireland	0.6	0.77	0.67
22 Portugal	0.93	0.83	0.89	Israel	0.58	0.63	0.63	Portugal	0.2	0.35	0.67
23 Iran	na	na	0.86	Hong Kong	0.66	0.67	0.63	Austria	0.57	0.49	0.64
24 Greece	0.67	0.81	0.80	South Korea	na	0.62	0.62	Finland	0.58	0.77	0.63
25 Norway	0.74	0.94	0.80	Taiwan	0.68	0.66	0.59	South Africa	0.74	0.71	0.62
26 Slovenia	na	na	0.79	Brazil	0.47	0.44	0.58	Hong Kong	na	na	0.61
27 Taiwan	0.74	0.84	0.77	Hungary	0.50	0.56	0.57	Poland	0.49	0.47	0.57
28 Chile	0.78	0.52	0.74	Mexico	0.54	0.55	0.56	South Korea	0.39	0.28	0.57
29 Brazil	0.48	0.61	0.73	Greece	0.44	0.41	0.52	Hungary	0.46	0.43	0.56
30 Argentina	0.69	0.58	0.69	Argentina	0.43	0.45	0.50	Taiwan	na	0.57	0.51
31 South Korea	0.58	0.75	0.67	Czech Republic	na	na	0.50	Argentina	0.41	0.43	0.50
32 Venezuela	0.96	na	0.66	Singapore	na	0.45	0.50	China	0.28	0.37	0.45
33 South Africa	0.78	0.81	0.66	Poland	0.46	0.48	0.49	Greece	0.27	0.32	0.41
34 China	0.58	0.57	0.61	South Africa	0.38	0.44	0.46	Czech Republic	na	na	0.41
35 Hungary	0.66	0.62	0.59	Egypt	0.23	0.28	0.36	Turkey	0.43	0.4	0.38
36 Czech Republic	na	na	0.57	China	0.32	0.31	0.34	Russia	na	na	0.37
37 Poland	0.52	0.56	0.56	Kenya	0.49	0.51	0.31	Croatia	na	na	0.34
38 Mexico	0.64	0.60	0.55	Saudi Arabia	0.45	0.36	0.30	Ukraine	na	na	0.34
39 Croatia	na	na	0.54	Slovakia	na	na	0.30	India	0.3	0.29	0.34
40 India	0.42	0.48	0.54	India	0.27	0.28	0.30	Slovakia	na	na	0.32
41 Bulgaria	0.34	0.51	0.53	Turkey	0.33	0.25	0.29	Bulgaria	0.24	0.25	0.24
42 Morocco	na	na	0.51	Chile	0.29	0.23	0.25	Saudi Arabia	0.2	0.3	0.19
43 Turkey	0.64	0.62	0.49	Russia	na	na	0.16	Egypt	0.16	0.18	0.17
44 Malaysia	na	na	0.49					Singapore	0.25	na	0.16
45 Slovakia	na	na	0.39								
46 Saudi Arabia	0.64	0.43	0.37								
47 Egypt	0.39	0.29	0.32								
48 Yugoslavia	0.54	0.53	0.32								
49 Romania	0.21	0.31	0.28								
50 Russia	na	na	0.28								
Country/economy	Engineering and technology			Mathematics			Physics				
	1990	1994	1999	Country/economy	1990	1994	1999	Country/economy	1990	1994	1999
1 Switzerland	1.32	1.48	1.77	Byelorussia	na	na	1.55	United States	1.54	1.50	1.47
2 Denmark	1.21	1.60	1.34	Denmark	1.33	1.74	1.36	Switzerland	1.64	1.51	1.36
3 Netherlands	1.45	1.27	1.24	Slovenia	na	na	1.36	Denmark	1.28	1.38	1.35
4 United States	1.30	1.24	1.20	United States	1.29	1.26	1.24	Germany	1.27	1.31	1.27
5 Sweden	0.96	1.07	1.11	Norway	1.35	1.20	1.23	Netherlands	1.27	1.34	1.26
6 France	1.10	1.14	1.10	United Kingdom	1.11	1.19	1.23	Austria	0.97	1.05	1.15
7 Italy	0.86	0.92	1.10	Argentina	0.77	0.87	1.16	Israel	1.19	1.05	1.12
8 Argentina	0.87	0.84	1.09	Germany	0.80	0.87	1.08	Sweden	1.09	1.06	1.10
9 Germany	0.80	0.97	1.06	Switzerland	1.16	0.99	1.07	United Kingdom	1.03	1.05	1.07
10 Spain	0.85	1.20	1.06	Belgium	0.92	0.98	1.04	New Zealand	1.01	1.08	1.07
11 Australia	1.08	1.05	1.05	Ireland	0.27	0.50	1.02	France	0.99	1.11	1.03
12 Norway	0.76	0.71	1.04	Sweden	1.10	1.16	1.02	Finland	1.09	1.14	1.01
13 Austria	0.90	0.81	1.01	Australia	1.21	1.02	1.02	Canada	0.92	1.02	0.99
14 Belgium	1.04	1.14	1.01	Italy	0.91	0.85	0.94	Belgium	0.96	0.91	0.96
15 Portugal	0.66	0.68	1.01	Netherlands	0.98	0.95	0.94	Spain	0.67	0.80	0.95
16 Czech Republic	na	na	1.00	Hong Kong	0.68	0.80	0.94	Italy	0.86	0.87	0.94
17 Japan	0.90	0.96	1.00	Canada	0.87	0.78	0.92	Ireland	0.80	1.03	0.93
18 United Kingdom	0.99	1.07	0.99	Finland	1.01	1.09	0.92	Australia	0.88	0.86	0.90
19 New Zealand	0.62	0.89	0.99	France	1.03	1.09	0.89	Hungary	0.61	0.67	0.87
20 Hungary	0.57	0.61	0.98	Tunisia	0.75	na	0.87	Japan	0.90	0.89	0.87
21 Finland	0.84	1.03	0.95	Singapore	0.22	0.67	0.87	Norway	0.67	0.79	0.84
22 Slovenia	na	na	0.94	South Korea	0.43	0.47	0.83	Portugal	0.54	0.67	0.84
23 South Korea	1.00	0.71	0.90	South Africa	1.10	0.72	0.82	Slovenia	na	na	0.83
24 Canada	0.83	0.90	0.89	Israel	0.99	0.83	0.79	Argentina	0.58	0.62	0.81
25 Israel	0.96	0.94	0.86	Spain	0.70	0.95	0.79	Greece	0.57	0.70	0.79
26 Ireland	na	1.12	0.85	Taiwan	1.04	0.49	0.78	Lithuania	na	na	0.76
27 Singapore	0.83	0.60	0.83	Venezuela	0.89	0.91	0.76	Hong Kong	na	na	0.76
28 Chile	na	na	0.80	Hungary	0.46	0.60	0.74	South Africa	0.59	0.57	0.74
29 Greece	0.81	0.81	0.80	Turkey	0.88	0.68	0.73	Chile	na	na	0.69
30 Brazil	0.73	0.73	0.78	Poland	0.57	0.54	0.73	Brazil	0.49	0.55	0.68

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-52.

Relative prominence of scientific literature by country/economy and field: 1990, 1994, and 1999
 (Relative Citation Indexes¹)

Country/economy	Engineering and technology			Country/economy	Mathematics			Country/economy	Physics		
	1990	1994	1999		1990	1994	1999		1990	1994	1999
31 Hong Kong	0.96	0.77	0.78	Japan	0.64	0.78	0.72	Mexico	0.66	0.55	0.67
32 Taiwan	0.93	0.80	0.78	Chile	0.97	0.94	0.71	Croatia	na	na	0.62
33 China	0.58	0.59	0.71	Portugal	0.35	0.63	0.71	Slovakia	na	na	0.62
34 Mexico	0.52	0.85	0.70	Czech Republic	na	na	0.71	South Korea	0.60	0.62	0.62
35 Turkey	0.62	0.37	0.70	Mexico	0.87	0.57	0.70	Czech Republic	na	na	0.61
36 Poland	0.64	0.59	0.69	Slovakia	na	na	0.67	Poland	0.48	0.55	0.61
37 Bulgaria	0.68	0.59	0.68	Greece	0.63	0.74	0.66	Yugoslavia	0.54	0.47	0.58
38 India	0.66	0.60	0.68	Brazil	0.58	1.02	0.65	Taiwan	0.48	0.51	0.55
39 South Africa	0.64	0.62	0.61	New Zealand	0.87	1.07	0.65	Turkey	na	0.44	0.51
40 Kuwait	0.49	0.62	0.60	Austria	0.84	0.84	0.64	India	0.39	0.47	0.51
41 Saudi Arabia	0.48	0.42	0.58	China	0.42	0.47	0.62	Bulgaria	0.44	0.39	0.48
42 Yugoslavia	0.80	0.66	0.57	Croatia	na	na	0.59	Russia	na	na	0.45
43 Romania	0.30	0.42	0.57	Bulgaria	0.45	0.76	0.59	Romania	0.31	0.41	0.44
44 Slovakia	na	na	0.57	Ukraine	na	na	0.56	Singapore	na	na	0.44
45 Egypt	0.41	0.45	0.52	Romania	0.55	0.72	0.55	China	0.30	0.36	0.43
46 Belarus	na	na	0.44	Yugoslavia	0.56	0.52	0.53	Byelarus	na	na	0.33
47 Russia	na	na	0.40	India	0.51	0.50	0.52	Ukraine	na	na	0.31
48 Ukraine	na	na	0.31	Vietnam	0.87	0.60	0.50	Egypt	0.32	0.26	0.30
49				Russia	na	na	0.46	Armenia	na	na	0.29
50				Saudi Arabia	0.59	0.88	0.42	Uzbekistan	na	na	0.18
Country/economy	Social Sciences			Country/economy	Psychology			Country/economy	Health		
	1990	1994	1999		1990	1994	1999		1990	1994	1999
1 United States	1.31	1.29	1.28	United Kingdom	1.10	1.20	1.16	Finland	1.09	0.91	1.38
2 United Kingdom	0.91	0.98	1.07	United States	1.14	1.12	1.12	United States	1.15	1.14	1.14
3 Spain	0.46	0.80	1.01	Canada	1.17	1.03	1.07	Netherlands	0.93	1.08	1.13
4 Chile	na	na	0.88	New Zealand	0.80	0.83	1.06	China	0.65	0.69	0.98
5 Netherlands	0.73	0.73	0.87	Netherlands	0.72	1.05	1.03	New Zealand	0.68	0.74	0.97
6 Sweden	0.79	0.87	0.86	Italy	0.97	0.89	0.93	Sweden	1.00	1.03	0.93
7 Canada	0.95	0.84	0.84	Argentina	0.46	0.78	0.90	United Kingdom	0.71	0.81	0.90
8 South Korea	0.56	0.52	0.84	Brazil	0.21	0.81	0.90	Spain	0.47	0.58	0.89
9 Hong Kong	0.47	0.40	0.82	Hungary	0.21	0.47	0.90	Australia	0.64	0.90	0.88
10 Portugal	na	na	0.81	Finland	0.81	1.10	0.89	Canada	0.82	0.78	0.87
11 Singapore	0.32	0.72	0.79	Belgium	0.63	0.92	0.86	Austria	0.55	0.11	0.83
12 New Zealand	0.57	0.71	0.78	Spain	0.59	0.67	0.85	Italy	0.80	0.99	0.73
13 Norway	0.43	0.92	0.76	Norway	0.91	0.90	0.82	Norway	0.63	0.83	0.71
14 Belgium	0.83	0.58	0.72	Australia	0.77	0.81	0.80	Denmark	0.35	0.88	0.70
15 Finland	0.40	0.58	0.72	Sweden	1.20	1.14	0.78	South Africa	1.06	0.24	0.67
16 Switzerland	0.38	0.50	0.66	Ireland	na	na	0.76	Ireland	0.00	0.30	0.67
17 Australia	0.63	0.67	0.65	Israel	0.74	0.63	0.74	France	0.51	0.55	0.64
18 France	0.35	0.44	0.61	France	0.54	0.73	0.74	Mexico	na	0.69	0.56
19 Italy	0.44	0.57	0.61	Germany	0.45	0.53	0.72	Israel	0.40	0.45	0.56
20 Israel	0.95	0.85	0.60	China	na	0.21	0.68	Hungary	0.79	1.06	0.53
21 Mexico	0.45	0.52	0.56	Portugal	na	na	0.66	Japan	0.53	0.81	0.53
22 Ireland	0.29	0.43	0.56	Austria	0.53	0.57	0.65	Hong Kong	0.59	0.36	0.49
23 Denmark	0.66	1.66	0.55	Denmark	0.83	0.50	0.63	Germany	0.51	0.43	0.48
24 Brazil	0.49	0.34	0.53	Hong Kong	0.77	0.40	0.62	Switzerland	0.38	0.50	0.48
25 Turkey	NA	0.38	0.52	Switzerland	0.49	0.66	0.59	South Korea	na	na	0.43
26 Banglad	0.na	0.59	0.52	Poland	0.46	0.49	0.59	Taiwan	na	na	0.43
27 Croatia	na	na	0.50	Mexico	0.81	0.44	0.55	Greece	0.00	0.00	0.41
28 China	0.21	0.47	0.47	Taiwan	na	0.22	0.46	Nigeria	0.32	0.25	0.39
29 Austria	0.26	0.44	0.45	Venezuela	na	na	0.44	Belgium	0.52	0.51	0.34
30 South Africa	0.51	0.57	0.44	Japan	0.51	0.43	0.43	Brazil	0.41	0.30	0.27
31 Germany	0.35	0.36	0.42	South Africa	0.29	0.43	0.39	Saudi Arabia	0.19	0.26	0.18
32 Greece	0.63	0.52	0.41	Greece	na	na	0.39	India	0.42	0.28	0.17
33 Japan	0.52	0.45	0.41	South Korea	na	na	0.38	Argentina	na	na	0.00
34 Taiwan	0.31	0.19	0.37	India	0.28	0.22	0.32				
35 Poland	0.24	0.36	0.35	Czech Republic	na	na	0.22				
36 Argentina	0.15	0.30	0.30	Russia	na	na	0.15				
37 India	0.22	0.22	0.24	Slovakia	na	na	0.11				
38 Hungary	0.30	0.52	0.22								
39 Nigeria	0.25	0.37	0.21								
40 Czech Republic	na	na	0.16								
41 Russia	na	na	0.13								
42 Slovakia	na	na	0.06								
43 Pakistan	na	na	0.06								

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-52.

Relative prominence of scientific literature by country/economy and field: 1990, 1994, and 1999
 (Relative Citation Indexes¹)

Rank		Professional		
		1990	1994	1999
1	Denmark	0.97	0.52	1.17
2	United States	1.13	1.14	1.16
3	Hong Kong	0.72	1.10	0.99
4	Canada	0.89	0.94	0.89
5	Netherlands	0.79	0.76	0.86
6	Switzerland	0.44	0.65	0.86
7	Australia	0.76	0.80	0.84
8	Belgium	0.80	0.63	0.81
9	Israel	0.89	0.75	0.80
10	France	0.62	0.54	0.80
11	Singapore	0.30	0.66	0.77
12	Hungary	1.23	0.60	0.75
13	Finland	0.41	0.34	0.73
14	South Korea	na	0.84	0.73
15	New Zealand	0.96	0.67	0.73
16	United Kingdom	0.63	0.67	0.64
17	Spain	0.26	0.44	0.63
18	Brazil	na	0.14	0.62
19	Japan	0.57	0.78	0.62
20	Norway	0.44	0.60	0.58
21	Taiwan	na	0.93	0.57
22	Sweden	0.44	0.54	0.53
23	Austria	0.35	0.54	0.51
24	Italy	0.36	0.49	0.49
25	Ireland	0.32	na	0.47
26	Turkey	na	0.37	0.45
27	South Africa	0.57	0.65	0.42
28	Poland	0.30	0.16	0.42
29	India	0.32	0.36	0.41
30	China	0.15	0.15	0.35
31	Germany	0.28	0.32	0.31
32	Saudi Arabia	na	na	0.28
33	Mexico	na	na	0.21
34	Greece	0.24	0.35	0.20
35	Portugal	na	na	0.17
36	Russia	na	na	0.08
37	Nigeria	0.28	0.28	0.05

na = not applicable

NOTE: Germany has data for West Germany only prior to 1992.

SOURCES: Institute for Scientific Information, Science Citation and Social Citation Indexes; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics.

Appendix table 5-53
Citations of foreign literature by country and region

Citing country/region	Year	Total citations (Number)	Foreign citations (Number)	Share of foreign citations by cited region/country								
				United States	North America	Western Europe	Eastern Europe	Asia	Pacific	Latin America	Sub-Saharan Africa	Near-East
World	1990	2,098,582	1,120,903	na	na	na	na	na	na	na	na	na
World	1994	2,519,136	1,442,998	na	na	na	na	na	na	na	na	na
World	1999	2,749,015	1,671,901	na	na	na	na	na	na	na	na	na
United States	1990	936,603	277,684	na	na	63.0%	2.3%	13.9%	5.4%	1.2%	0.8%	2.6%
United States	1994	1,050,820	333,280	na	na	63.4%	2.6%	15.0%	4.2%	1.3%	0.6%	2.3%
United States	1999	1,008,357	353,797	na	na	63.7%	2.4%	15.4%	4.4%	1.6%	0.5%	2.2%
North America	1990	1,036,541	277,502	na	na	70.8%	2.5%	15.4%	6.2%	1.3%	0.9%	2.9%
North America	1994	1,170,067	336,653	na	na	71.0%	2.9%	16.5%	4.9%	1.4%	0.7%	2.5%
North America	1999	1,122,484	360,098	na	na	70.8%	2.6%	16.9%	5.0%	1.8%	0.5%	2.4%
Western Europe	1990	702,409	351,491	74.7%	80.9%	na	2.4%	9.8%	3.8%	0.8%	0.6%	1.6%
Western Europe	1994	897,606	453,971	73.5%	79.8%	na	2.8%	11.0%	3.3%	1.0%	0.6%	1.5%
Western Europe	1999	1,036,360	507,888	70.1%	76.5%	na	3.2%	12.7%	3.9%	1.4%	0.6%	1.7%
Eastern Europe	1990	75,349	51,254	43.9%	47.8%	37.7%	na	10.2%	1.9%	0.7%	0.3%	1.3%
Eastern Europe	1994	75,705	53,327	41.0%	44.9%	40.6%	na	10.5%	1.6%	0.9%	0.3%	1.2%
Eastern Europe	1999	87,453	63,964	36.0%	39.6%	44.6%	na	11.0%	2.0%	1.2%	0.2%	1.4%
Asia	1990	178,525	112,185	57.7%	61.7%	32.2%	1.7%	na	2.3%	0.7%	0.4%	1.1%
Asia	1994	248,148	157,587	56.4%	60.5%	33.5%	1.9%	na	2.0%	0.7%	0.3%	1.1%
Asia	1999	337,959	216,813	51.8%	56.0%	36.8%	2.2%	na	2.4%	1.0%	0.3%	1.3%
Pacific	1990	52,650	38,176	51.2%	56.8%	34.8%	0.8%	5.4%	na	0.5%	0.7%	1.0%
Pacific	1994	62,649	47,438	49.2%	54.8%	34.8%	1.1%	6.9%	na	0.7%	0.7%	1.0%
Pacific	1999	75,818	58,075	46.4%	51.8%	37.1%	1.1%	7.5%	na	1.0%	0.5%	1.0%
Latin America	1990	19,386	15,360	50.2%	54.8%	31.6%	1.9%	6.7%	2.7%	na	0.9%	1.4%
Latin America	1994	25,345	20,358	47.3%	51.8%	34.1%	2.3%	7.2%	2.5%	na	0.8%	1.3%
Latin America	1999	44,732	35,564	41.2%	45.4%	38.2%	2.6%	9.1%	2.8%	na	0.6%	1.4%
Sub-Saharan Africa	1990	9,514	6,831	43.7%	48.5%	35.4%	0.9%	6.8%	5.1%	1.5%	na	1.7%
Sub-Saharan Africa	1994	10,999	8,331	40.6%	45.3%	37.2%	2.1%	7.7%	4.1%	1.8%	na	1.8%
Sub-Saharan Africa	1999	10,286	7,985	36.6%	40.7%	40.8%	1.6%	8.9%	4.5%	2.1%	na	1.5%
Near East & North Africa	1990	24,210	19,002	56.0%	59.8%	29.2%	1.2%	6.3%	2.3%	0.7%	0.6%	na
Near East & North Africa	1994	28,618	23,262	52.0%	55.9%	31.6%	2.3%	7.0%	1.8%	0.7%	0.7%	na
Near East & North Africa	1999	33,926	27,513	44.6%	48.6%	35.9%	2.4%	9.3%	2.2%	1.3%	0.4%	na

na = not applicable

NOTES: Citations are on the basis of a three-year window with a two-year lag; for example, 1999 citations consist of papers published in 1999 citing articles published in 1995-97. Citations and articles are those that are classified in the 1985 ISI journal set.

SOURCE: Institute for Scientific Information, Science Citation and Social Citation Indexes; CHI Research, Inc., Science Indicators database; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-54.

U.S. patent citations to scientific literature, by field and by country/region: 1987–2000

(Percent share)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Cited field														
Total (number)	13,459	15,138	19,417	19,422	23,390	28,077	38,493	40,266	46,961	66,129	102,111	143,541	143,215	142,008
Total (percentage)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Clinical medicine	23.1	23.4	22.7	24.1	23.8	24.7	25.9	24.3	26.8	27.7	29.9	30.5	30.0	29.2
Biomedical research	24.2	25.1	26.8	25.7	29.3	32.0	35.9	34.0	34.9	40.1	44.3	47.4	47.0	45.3
Biology	2.5	2.6	2.7	2.8	3.2	2.5	2.3	2.9	2.8	3.1	2.2	2.6	3.2	2.9
Physics	15.9	17.0	19.3	17.6	16.8	15.0	12.8	14.1	11.6	8.4	6.6	5.4	5.8	6.5
Chemistry	19.3	17.7	16.3	17.8	16.7	17.0	15.5	15.4	15.1	12.7	11.4	9.1	9.1	10.6
Earth and space	1.0	0.7	0.8	0.7	0.7	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3
Engineering and technology	13.9	13.5	11.3	11.3	9.4	8.4	7.2	8.8	8.5	7.6	5.3	4.8	4.7	5.3
Mathematics	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Cited country/region														
Total (number)	13,459	15,138	19,417	19,422	23,390	28,077	38,493	40,266	46,961	66,129	102,111	143,541	143,215	142,008
Total (percentage)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States	55.9	55.7	58.6	58.4	58.7	59.0	59.0	58.0	58.7	59.4	60.0	61.1	59.9	59.1
Canada	2.8	2.6	2.6	2.8	2.7	3.0	2.9	3.2	3.4	3.5	3.3	3.4	3.5	3.5
Western Europe	24.4	23.3	22.2	22.5	21.9	22.4	22.8	22.5	22.8	22.9	23.4	23.2	23.8	24.6
United Kingdom	8.5	7.4	7.3	7.7	7.1	6.9	7.0	6.7	7.1	7.1	7.0	7.1	7.0	7.2
France	3.5	3.5	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.3	3.3	3.5	3.5	3.6
Germany	4.2	4.2	4.1	4.0	3.8	4.3	4.3	4.2	4.3	4.1	4.6	4.2	4.3	4.6
Asia	11.0	13.1	12.2	12.4	12.7	11.5	11.2	12.0	11.2	10.1	9.1	8.5	8.9	9.0
Japan	10.1	11.8	11.3	11.4	11.6	10.4	10.1	10.7	9.9	9.0	8.1	7.5	7.8	7.7
Pacific	1.3	1.4	1.5	1.3	1.3	1.5	1.5	1.6	1.6	1.6	1.8	1.6	1.7	1.6
Eastern Europe	2.8	2.3	1.6	1.3	1.4	1.2	1.3	1.3	1.2	1.1	1.0	1.0	0.9	0.9
Near East	1.2	1.1	0.9	0.9	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	0.9
Latin America	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Sub-Saharan Africa	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1

NOTES: The number of citations is based on a three-year lag with a 12-year window of articles in a comprehensive set of journals numbering approximately 5,000 covered by the Institute for Scientific Information. For example, the 2000 citations would be patents issued in 2000 citing papers between 1997 and 1986, and so forth. Percent share refers to the share of the cited paper's scientific field and its nationality based on the institutional address of the cited paper. Science field and country region is determined by CHI's field classification of the journal and the institutional address of the cited publication.

SOURCES: U.S. Department of Commerce, Patent and Trademark Office; Institute for Scientific Information, Science Citation Index; CHI Research, Inc., Science Indicators and patent databases; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Science and Engineering Indicators – 2002

Appendix table 5-55.

Citations of U.S. patents to U.S. literature, by field and sector: 1987, 1990, 1994, and 2000
 (Percent share)

Cited Sector	Cited scientific field												
	All fields	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Engineering			Social science	Professional fields	Health sciences	
							Earth and space	and technology	Mathematics				
2000													
Total citations (number)	91,389	26,355	44,857	2,300	7,649	5,240	284	4,403	29	118	19	86	46
Total (percentage)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Academic	60.0	60.3	61.1	69.3	64.3	46.2	63.7	48.5	62.1	73.7	78.9	86.0	45.7
Industry	20.1	16.0	17.3	14.7	25.4	41.6	16.9	41.7	20.7	6.8	15.8	10.5	26.1
Federal Government	7.5	9.3	7.8	11.2	3.4	3.9	9.2	2.7	0.0	1.7	0.0	0.0	8.7
State and local government	0.4	0.7	0.4	0.1	0.0	0.0	1.1	0.1	0.0	0.8	0.0	0.0	2.2
FFRDCs	1.8	0.7	1.4	0.4	3.9	6.7	4.2	4.2	10.3	0.0	0.0	0.0	0.0
Nonprofit	9.7	12.1	11.6	3.6	2.8	1.1	1.4	1.5	0.0	11.0	0.0	1.2	8.7
Unknown	0.6	0.8	0.4	0.5	0.2	0.3	2.1	1.3	3.4	4.2	0.0	1.2	4.3
1997													
Total citations (number)	66,277	19,584	31,832	1,412	5,849	3,907	181	3,419	28	35	0	0	25
Total (percentage)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Academic	57.9	58.8	59.2	68.7	63.6	42.4	51.9	44.5	67.9	65.7	na	na	44.0
Industry	20.5	15.8	16.9	13.5	27.1	42.2	24.3	46.7	25.0	5.7	na	na	0.0
Federal Government	8.6	10.4	9.4	12.6	3.3	5.6	9.9	2.6	0.0	2.9	na	na	12.0
State and local government	0.6	1.0	0.6	0.2	0.2	0.0	1.1	0.0	0.0	0.0	na	na	20.0
FFRDCs	1.7	0.9	1.2	0.6	2.7	7.2	6.1	3.9	0.0	0.0	na	na	0.0
Nonprofit	10.1	12.3	12.2	4.0	2.9	2.2	2.2	1.3	0.0	17.1	na	na	16.0
Unknown	0.6	0.8	0.5	0.2	0.2	0.3	2.8	0.9	0.0	0.0	na	na	0.0
1994													
Total citations (number)	24,890	6,291	9,221	646	2,991	3,393	102	2,210	13	13	0	0	5
Total (percentage)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Academic	55.7	60.3	60.4	67.8	63.5	35.7	46.1	40.3	84.6	76.9	na	na	40.0
Industry	24.4	13.7	17.0	14.2	27.3	48.0	28.4	48.3	7.7	0.0	na	na	0.0
Federal Government	8.1	10.5	9.6	14.1	3.0	5.4	10.8	4.3	0.0	15.4	na	na	0.0
State and local government	0.7	1.2	0.8	0.3	0.1	0.0	2.9	0.0	0.0	0.0	na	na	40.0
FFRDCs	2.8	0.8	1.3	0.5	3.5	8.9	2.9	5.1	7.7	0.0	na	na	0.0
Nonprofit	7.8	12.8	10.3	2.3	2.4	1.8	3.9	1.5	0.0	0.0	na	na	0.0
Unknown	0.4	0.6	0.4	0.3	0.1	0.1	1.0	0.5	0.0	0.0	na	na	0.0
1990													
Total citations (number)	11,940	2,984	3,427	298	1,633	2,119	69	1,380	2	23	0	0	1
Total (percentage)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Academic	51.9	58.4	61.9	67.1	56.5	34.4	37.7	31.0	100.0	87.0	na	na	0.0
Industry	28.1	12.9	15.3	9.7	34.5	49.3	36.2	56.7	0.0	0.0	na	na	0.0
Federal Government	8.4	10.9	10	19.8	3.3	6.8	11.6	4.6	0.0	0.0	na	na	0.0
State and local government	0.7	1.5	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	na	na	0.0
FFRDCs	3.1	0.7	1.2	0.3	3.1	8.3	7.2	5.6	0.0	0.0	na	na	0.0
Nonprofit	7.3	15.0	10.0	2.0	2.3	1.0	4.3	1.2	0.0	4.3	na	na	0.0
Unknown	0.4	0.5	0.5	0.3	0.1	0.1	0.0	0.7	0.0	0.0	na	na	0.0

See explanatory notes, if any, and SOURCE at end of table

Appendix table 5-55.

Citations of U.S. patents to U.S. literature, by field and sector: 1987, 1990, 1994, and 2000
 (Percent share)

Cited Sector	Cited scientific field												
	All fields	Clinical medicine	Biomedical research	Biology	Chemistry	Physics	Earth and space	Engineering and technology			Social science	Professional fields	Health sciences
								Mathematics	Psychology				
1987													
Total citations (number)	7,845.0	1,889.0	2,133.0	164.0	1,127.0	1,226.0	101.0	1,186.0	0.0	13.0	1.0	1.0	0.0
Total (percentage)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	na	100.0	100.0	100.0	100.0
Academic	49.1	56.7	62.4	58.5	58.6	28.2	39.6	24.8	na	84.6	100.0	0.0	na
Industry	28.6	13.7	12.0	9.8	30.4	52.3	24.8	59.5	na	7.7	0.0	0.0	na
Federal Government	9.2	12.1	10.0	28.7	4.9	6.9	17.8	5.9	na	0.0	0.0	0.0	na
State and local government	0.8	1.6	1.2	0.0	0.0	0.2	3.0	0.0	na	0.0	0.0	0.0	na
FFRDCs	3.7	1.2	0.7	0.6	2.8	11.2	10.9	6.0	na	0.0	0.0	0.0	na
Nonprofit	8.1	14.0	13.4	1.8	2.9	1.0	1.0	3.1	na	7.7	0.0	100.0	na
Unknown	0.4	0.6	0.2	0.0	0.2	0.2	0.0	0.6	na	0.0	0.0	0.0	na

FFRDCs = Federally Funded Research and Development Centers. na = not applicable.

NOTES: The number of citations by U.S. patents is based on a three-year lag with a 12-year window of U.S. articles in the entire set of approximately 5,000 journals covered by the ISI. For example, the 2000 citations would be patents issued in 2000 citing U.S. papers published 1997 and 1986, and so forth. Sector is determined by the institutional address of the cited paper. Scientific field is determined by CHI's classification of the journal. Computer sciences is included in engineering and technology.

SOURCES: U.S. Department of Commerce, Patent and Trademark Office; CHI Research, Inc., Science Indicators and patent databases; and National Science Foundation, Division of Science Resources Statistics (NSF/SRS).

Appendix table 5-56.

U.S. patents awarded to all U.S. universities and colleges and to top 100 patenting institutions in 1990s: 1982–98

Institution	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number of academic institutions awarded patents																	
Institutions awarded patents ...	75	85	103	118	124	128	126	156	153	161	159	168	175	171	184	184	180
Public	43	52	56	65	75	70	69	89	87	93	93	102	102	100	106	109	102
Private	31	32	45	49	46	54	52	62	61	61	59	61	66	65	72	69	71
Patents awarded to academic institutions																	
All academic institutions	464	437	552	589	670	820	814	1,228	1,184	1,340	1,542	1,620	1,780	1,879	2,155	2,436	3,151
Public	241	224	259	308	357	397	406	656	672	794	909	940	1,068	1,189	1,338	1,503	1,824
Private	174	161	237	238	263	366	370	536	488	518	608	655	680	662	789	904	1,300
100 largest patenting, 1990s	386	357	457	482	548	696	704	1,090	1,078	1,212	1,420	1,486	1,634	1,713	1,970	2,245	2,920
Public	228	206	240	267	311	359	373	597	613	721	839	866	989	1,096	1,241	1,391	1,699
Private	158	151	217	215	237	337	331	493	465	491	581	620	645	617	729	854	1,221
Percentage of all patents awarded to 100 largest	83.2	81.7	82.8	81.8	81.8	84.9	86.5	88.8	91.0	90.4	92.1	91.7	91.8	91.2	91.4	92.2	92.7
Patents awarded to public universities among top 100 in 1990s																	
University of California	42	48	46	42	54	67	60	81	65	84	81	115	163	213	266	277	395
University of Texas	7	5	8	20	25	21	21	51	56	84	73	86	99	90	88	81	98
University of Wisconsin	17	13	16	17	17	11	20	27	16	45	43	57	48	48	64	62	83
University of Florida	0	6	10	7	10	13	21	33	33	38	42	34	26	31	36	43	52
Iowa State University	15	10	14	21	9	15	15	28	30	39	23	29	37	37	38	36	53
State University of New York ...	8	2	11	5	11	18	10	25	20	27	34	30	37	31	37	45	51
University of Minnesota	10	5	6	11	16	28	26	40	38	32	31	27	28	25	31	32	43
University of Michigan	2	2	1	1	10	6	14	23	27	21	21	19	28	30	25	53	50
Michigan State University	1	3	3	3	10	6	8	2	7	11	19	13	21	15	32	41	59
North Carolina State																	
University	1	0	2	3	4	6	5	10	14	11	24	27	32	31	26	24	26
University of Utah	14	15	9	11	7	12	9	13	14	5	13	20	22	17	32	31	37
University of Washington	7	2	3	1	2	1	6	5	7	11	12	11	13	17	26	37	47
University of North Carolina	0	1	0	0	3	2	2	6	8	3	11	14	13	21	22	39	29
Georgia Institute of																	
Technology	8	3	6	11	9	9	7	8	18	11	16	16	20	21	22	16	17
Ohio State University	6	9	3	12	5	13	14	13	10	15	21	10	10	17	22	27	24
Rutgers University	0	0	1	1	0	2	2	7	2	15	12	15	18	20	18	21	26
Louisiana State University	0	1	1	1	1	3	4	9	4	5	20	16	11	14	16	22	38
Texas A&M University	3	2	3	8	3	6	9	8	9	12	14	22	20	16	16	14	21
University of Maryland	0	1	0	0	3	2	2	1	4	4	14	21	15	21	20	18	24
University of Nebraska	4	0	5	1	1	1	4	0	3	4	4	10	16	21	29	24	24
University of Pittsburgh	2	5	8	3	8	10	6	11	11	16	10	10	10	13	12	17	32
University of Colorado	0	0	0	0	0	1	0	4	9	6	19	7	14	18	16	21	19
Pennsylvania State																	
University	0	0	0	0	0	1	1	1	3	6	7	10	16	18	20	19	26
University of Illinois	7	8	8	10	12	4	9	15	7	8	10	13	14	12	16	17	21
Purdue University	11	11	14	18	9	4	2	11	15	11	5	6	11	10	12	24	22

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-56.

U.S. patents awarded to all U.S. universities and colleges and to top 100 patenting institutions in 1990s: 1982–98

Institution	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Virginia Polytechnic Institute	0	0	0	0	0	0	2	7	4	11	18	12	16	6	14	17	16
University of Iowa	5	3	4	1	8	8	6	8	12	6	7	11	9	17	11	14	25
University of Virginia	8	4	2	1	4	3	4	8	12	11	9	7	5	10	13	13	20
University of Georgia	0	7	7	5	6	4	0	3	5	8	10	18	7	10	12	11	18
University of Alabama	3	1	1	5	3	5	3	3	6	3	7	6	7	9	13	19	27
University of Akron	4	1	3	3	2	0	6	6	9	14	11	9	17	11	12	5	9
Wayne State University	2	1	0	1	5	6	7	16	9	8	16	12	14	9	8	8	10
University of New Mexico	0	0	0	2	3	1	3	9	9	10	11	5	9	15	8	13	12
University of Tennessee	1	0	1	5	8	8	8	12	14	10	12	4	5	14	8	13	9
Arizona State University	0	0	1	1	1	2	0	9	9	12	6	3	6	12	19	12	6
University of Kentucky	6	6	7	5	7	4	7	6	4	7	7	4	3	11	14	14	21
University of Missouri	9	5	4	0	3	8	9	5	6	7	9	8	7	10	8	16	13
University of Oklahoma	2	1	2	3	2	2	6	2	4	4	7	13	7	11	9	16	9
Temple University	2	0	2	0	1	5	7	10	9	3	14	9	9	11	7	9	6
Oregon Health Sciences University	0	0	0	0	0	3	0	3	4	6	5	5	6	10	12	16	13
University of South Florida.....	0	0	0	0	1	0	0	2	2	7	5	7	4	6	13	14	18
University of Arkansas	0	0	0	0	1	1	1	2	3	10	16	8	10	5	6	8	9
Kansas State University	2	4	3	2	4	4	3	4	1	7	7	9	20	11	9	4	7
University of Connecticut	0	0	0	1	1	2	1	2	8	3	9	9	2	8	9	13	11
University of Cincinnati	0	0	2	2	1	8	3	8	9	9	7	8	7	8	7	10	5
Clemson University	0	0	2	2	1	3	3	6	6	2	10	4	10	8	7	9	8
University of Delaware	12	6	5	9	7	5	8	8	11	10	10	5	4	5	5	4	6
Oregon State University	0	1	0	2	3	0	2	1	1	6	9	5	13	6	4	7	8
Indiana University	0	3	2	4	0	3	1	6	1	3	6	1	7	6	8	11	12
Florida State University	0	0	1	0	2	2	1	1	1	1	2	9	5	10	8	6	13
University of Toledo	2	1	2	0	1	0	0	3	0	2	4	7	6	14	7	9	6
University of Hawaii	1	1	0	2	0	1	3	2	6	2	5	8	6	7	6	6	6
University of Medicine and Dentistry	1	1	0	1	4	7	2	4	7	2	6	1	4	5	3	7	15
University of Central Florida	0	0	0	0	0	0	0	1	0	0	0	4	4	6	9	14	12
University of Houston	0	0	0	0	1	0	0	3	3	4	1	3	5	8	6	4	5
University of Massachusetts Medical Center	0	0	0	0	0	0	0	3	2	3	3	2	1	2	10	9	7
University of Arizona	1	2	1	2	2	0	0	1	2	1	1	3	6	4	4	9	8
University of Kansas	0	2	2	1	0	2	0	1	3	4	7	3	2	2	6	3	6
Virginia Commonwealth University	0	0	0	0	0	0	0	0	1	1	3	6	4	2	4	7	6
Patents awarded to private universities among top 100 in 1990s																	
Massachusetts Institute of Technology	51	47	47	35	45	63	64	101	109	101	125	112	99	104	119	102	138
Stanford University	4	16	36	38	33	48	54	43	36	57	42	50	62	54	55	64	79
Cornell University	6	10	14	20	13	30	16	22	34	40	41	35	39	36	52	50	65

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-56.

U.S. patents awarded to all U.S. universities and colleges and to top 100 patenting institutions in 1990s: 1982–98

Institution	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
California Institute of Technology	19	16	15	16	23	27	18	56	30	36	32	29	46	38	24	46	93
University of Pennsylvania	1	2	4	5	1	2	1	9	19	18	26	34	37	25	45	55	69
Johns Hopkins University	8	6	10	15	18	18	21	27	15	25	20	33	23	28	27	48	79
Columbia University	0	2	3	4	7	6	15	19	16	8	17	17	18	18	33	35	55
Harvard University	11	10	7	1	2	9	17	15	23	9	16	17	16	14	32	28	49
Washington University	0	1	1	3	1	7	6	12	7	22	18	18	19	21	18	22	41
Duke University	3	3	6	4	6	4	9	11	6	8	14	23	23	13	9	8	20
Rockefeller University	3	1	3	5	4	9	11	6	8	14	23	23	13	9	8	20	35
New York University	7	3	4	5	3	5	4	10	14	8	11	19	16	15	19	23	23
Boston University	1	2	2	3	6	9	9	9	11	6	22	15	14	14	16	20	19
Yale University	0	2	2	5	3	12	6	11	10	4	12	14	13	16	7	20	34
Northwestern University	7	3	2	2	8	10	10	7	5	4	8	8	12	18	10	27	35
Thomas Jefferson University ...	2	4	10	5	3	3	2	7	5	7	8	9	13	14	15	25	29
University of Southern California	5	1	7	5	5	4	7	8	6	5	18	13	15	6	15	18	16
Emory University	0	0	0	1	1	0	0	7	3	10	6	14	5	11	12	12	35
Princeton University	0	0	0	0	0	2	1	12	4	13	4	11	7	12	13	16	24
Baylor College of Medicine	3	1	2	2	2	7	3	7	8	4	6	9	9	4	15	15	27
Northeastern University	1	0	0	3	2	2	1	3	4	6	11	10	15	16	11	12	11
University of Chicago	2	0	2	0	0	1	6	7	2	0	0	6	14	16	13	22	22
Carnegie-Mellon University	0	0	3	3	3	1	2	5	3	5	10	4	8	10	13	9	26
University of Rochester	8	9	6	2	8	9	11	11	13	12	10	11	10	6	3	5	15
Mayo Foundation	0	0	0	3	1	1	0	3	4	4	8	9	4	6	12	17	20
Vanderbilt University	2	1	0	0	5	4	4	4	5	7	4	7	6	9	6	11	16
Case Western Reserve University	0	0	1	1	6	3	1	1	2	1	9	6	8	8	6	9	15
City University of New York	4	3	2	1	2	1	3	2	2	5	3	3	4	5	9	13	16
Georgetown University	1	4	5	1	0	4	3	1	5	3	5	5	7	6	7	8	11
Brown University	0	0	1	2	2	1	3	3	3	4	5	1	4	6	6	9	18
Tufts University	0	0	0	0	0	1	2	7	1	5	7	9	6	3	8	4	11
Tulane University	0	0	1	2	1	1	3	4	4	7	5	6	6	5	7	4	9
Brigham Young University	0	1	3	3	6	2	1	8	9	5	9	13	3	3	2	5	2
Rensselaer Polytechnic Institute	4	0	4	5	7	2	2	5	4	2	2	6	7	7	12	6	4
Syracuse University	0	0	1	2	3	2	5	4	9	2	5	5	3	1	2	9	7
Yeshiva University	1	1	1	4	1	6	1	5	1	0	1	4	3	3	11	6	14
University of Miami	2	0	4	4	3	15	5	5	1	1	5	2	5	5	5	14	3
Brandeis University	0	0	1	0	0	1	1	9	4	5	4	2	2	3	6	4	9
Alfred University	0	1	5	3	1	1	0	1	6	5	5	6	4	3	4	3	2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 5-56.

U.S. patents awarded to all U.S. universities and colleges and to top 100 patenting institutions in 1990s: 1982–98

Institution	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Patents awarded to affiliated organizations among top 100 in 1990s																	
Associated Universities, Inc.	0	0	0	0	0	0	1	3	7	7	5	5	14	12	12	13	9
Research Triangle Institute	2	3	0	2	2	4	2	3	6	8	4	8	7	7	2	4	6

NOTES: Top 100 patenting institutions are determined by the sum of their patents during the 1990s. Institutions are listed in declining order.

SOURCES: U.S. Patent and Trademark Office, *Technology Assessment and Forecast Report: U.S. Universities and Colleges, 1996–99* (Washington, DC, 2000) and National Science Foundation, Division of Science Resources Statistics (NSF/SRS), special tabulations (Arlington, VA).

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
All manufacturing industries																				
Production																				
United States	2,695,847.1	2,652,434.1	2,485,459.6	2,582,043.3	2,797,715.0	2,791,255.7	2,868,831.3	3,069,731.1	3,210,666.2	3,182,669.8	3,155,575.9	3,085,420.9	3,253,290.2	3,339,477.7	3,516,592.3	3,634,999.0	3,890,151.2	4,264,982.0	4,609,856.8	
Canada	205,144.1	208,226.6	192,468.1	204,641.0	229,522.7	246,863.2	259,609.9	271,229.1	288,638.7	284,562.6	267,103.6	254,428.3	260,899.8	281,601.0	316,347.8	329,349.0	337,872.9	364,298.9	393,875.3	
Japan	1,777,352.5	1,747,932.0	1,794,960.8	1,846,672.5	1,993,757.8	2,102,261.8	2,157,338.8	2,173,121.0	2,354,586.0	2,479,422.3	2,611,873.2	2,773,774.5	2,670,777.7	2,536,879.9	2,455,130.6	2,506,834.5	2,583,457.2	2,674,384.4	2,703,957.2	
Germany	748,176.7	727,298.9	741,875.3	776,538.5	803,581.0	835,821.9	935,631.3	967,720.2	1,002,525.8	1,019,034.1	1,085,070.4	1,268,090.8	1,237,920.2	1,135,521.5	1,159,570.3	1,179,555.3	1,172,248.6	1,206,049.8	1,277,239.3	
France	556,818.1	531,835.3	542,746.9	546,931.3	562,641.9	574,573.7	596,688.9	603,794.4	633,274.1	659,821.0	672,942.2	680,907.6	682,724.5	648,007.2	676,242.6	685,341.0	680,943.4	711,410.8	759,738.5	
United Kingdom	525,282.6	470,054.9	476,757.4	495,092.0	528,044.2	550,526.6	572,334.4	602,806.1	635,364.2	640,521.8	623,662.5	585,235.5	623,072.9	620,724.9	668,798.9	675,678.5	686,241.0	727,105.5	775,318.4	
Italy	369,792.6	349,969.5	340,826.6	364,982.4	394,124.4	397,409.0	409,243.7	421,486.7	447,339.4	453,220.7	439,846.7	438,826.1	489,031.8	476,633.5	543,736.7	544,988.5	555,102.5	571,736.6	600,999.4	
China	123,522.1	128,548.3	144,309.4	165,836.5	187,792.1	230,675.0	261,569.3	298,612.2	347,005.2	378,954.8	369,107.5	416,622.9	496,088.8	627,467.0	678,359.7	626,530.2	678,605.1	720,531.2	799,330.2	
South Korea	105,074.6	113,096.5	119,754.1	135,567.9	153,298.4	161,788.7	194,537.6	229,668.2	251,723.8	259,719.8	280,360.7	300,585.2	313,263.4	332,299.1	362,870.4	405,772.0	431,038.7	456,457.5	437,670.8	
Taiwan	82,182.6	80,862.3	82,272.7	93,469.7	108,966.8	117,814.4	151,708.7	167,518.2	183,274.8	184,144.5	178,786.0	192,269.1	194,425.9	205,387.6	216,078.1	230,220.0	231,624.9	251,327.5	270,496.5	
Singapore	29,493.9	31,243.1	30,281.2	30,370.6	33,708.6	32,503.0	33,755.1	41,418.3	47,799.9	50,702.4	55,143.3	56,176.7	58,331.6	64,062.7	71,791.3	77,504.7	81,251.3	85,403.6	89,064.1	
Hong Kong	42,004.1	46,574.1	42,284.3	53,811.0	55,112.2	49,672.6	64,981.5	74,825.2	76,155.2	69,056.2	63,636.5	60,350.8	57,015.5	50,135.7	45,291.6	43,642.1	37,836.1	38,684.8	38,578.4	
Argentina	135,060.5	106,962.4	95,150.9	98,747.1	104,805.3	103,212.1	127,792.9	129,183.2	116,558.4	110,584.8	115,485.4	116,718.2	115,217.2	95,407.1	101,653.7	96,907.1	102,513.8	112,112.3	120,057.0	
Bolivia	1,693.6	1,346.6	1,505.0	1,190.0	1,158.2	1,143.3	1,142.2	1,184.9	1,714.9	1,710.5	1,831.6	2,056.3	2,020.8	2,141.6	2,493.9	2,387.0	2,466.8	2,611.9	2,748.9	
Brazil	365,749.2	346,919.2	362,516.7	354,340.6	380,619.4	423,518.3	460,565.9	467,173.2	469,389.7	470,357.2	333,880.6	320,754.1	358,482.3	381,440.2	358,338.1	304,444.2	316,238.3	329,695.6	338,584.3	
Chile	12,705.3	12,094.0	10,522.9	12,080.7	14,595.9	16,392.9	18,158.7	20,099.3	22,699.6	26,979.4	26,413.1	28,303.7	31,588.2	33,230.7	34,611.5	36,753.8	39,232.7	42,532.5	45,128.4	
Colombia	19,941.6	19,512.2	19,276.5	20,085.8	21,892.9	23,505.8	26,082.6	28,111.9	30,448.8	31,430.0	32,097.2	32,570.7	33,390.7	33,618.4	34,548.5	35,742.6	35,611.3	37,891.2	39,274.5	
Costa Rica	2,666.3	3,169.2	3,051.8	2,993.2	3,328.6	3,395.7	4,068.5	3,941.3	4,036.6	3,901.7	3,803.5	4,052.2	4,326.0	4,632.1	4,854.5	5,079.8	4,773.1	4,718.8	5,243.9	
Ecuador	3,680.0	3,410.9	3,595.7	3,479.8	3,755.1	3,737.8	4,700.3	4,644.2	5,333.5	4,958.2	5,480.8	6,639.5	6,645.7	6,942.5	8,979.1	7,653.5	7,151.5	8,758.8	9,834.0	
Honduras	1,242.0	1,227.9	1,208.6	1,176.4	1,281.4	1,290.9	1,342.5	1,465.3	1,630.9	1,714.2	1,882.3	1,874.7	2,077.6	2,143.9	2,370.8	2,304.1	2,469.5	2,670.4	2,759.0	
Jamaica	2,510.1	2,472.7	2,762.8	2,959.6	3,027.5	3,106.8	3,099.7	3,356.5	3,197.2	3,370.9	3,494.4	3,537.7	3,993.9	4,085.0	4,148.0	4,111.5	4,059.2	4,014.7	4,096.0	
Mexico	117,942.9	123,231.7	115,863.6	111,658.7	126,963.2	137,261.1	140,926.8	149,948.0	175,097.7	168,997.2	170,401.5	180,048.0	185,806.7	184,387.0	195,570.1	199,287.3	220,673.7	265,891.2	300,362.3	
Panama	1,618.9	1,713.6	1,754.0	1,806.6	1,831.9	1,773.3	1,883.9	1,881.8	1,472.5	1,538.5	1,762.1	1,853.7	2,394.8	2,417.9	2,604.4	2,646.7	2,593.7	2,754.9	2,971.1	
Peru	24,529.0	18,278.7	18,648.5	17,308.8	19,434.8	22,002.9	22,835.1	26,372.3	22,074.6	19,002.8	18,030.3	15,817.4	15,850.5	16,224.4	18,522.1	19,625.4	20,053.8	21,735.5	22,386.2	
Uruguay	6,668.0	6,569.9	5,901.6	6,304.8	7,124.3	7,300.5	7,829.8	8,366.1	7,931.3	9,131.3	8,989.9	8,944.8	8,741.3	7,668.0	7,458.3	7,577.7	7,445.2	7,820.9	8,375.7	
Venezuela	24,095.7	22,507.4	24,692.1	24,967.1	25,875.0	28,006.4	31,422.2	33,074.1	36,032.3	30,536.3	31,410.6	34,548.0	35,164.6	30,937.5	36,543.1	33,836.9	37,603.6	39,371.6		
All countries ^a	9,811,430.2	9,578,234.0	9,573,520.6	9,967,606.8	10,642,867.5	11,049,727.5	11,660,030.3	12,219,267.2	12,921,557.3	13,244,755.5	13,242,275.8	13,594,806.1	13,793,015.2	13,644,185.8	14,063,474.2	14,383,783.1	14,904,138.1	15,833,001.6	16,717,821.7	
Exports																				
United States	289,026.2	280,890.9	244,764.1	224,346.8	288,828.4	243,051.5	261,871.8	290,149.4	344,634.3	377,688.1	408,751.7	437,086.4	449,725.3	476,100.2	522,825.5	577,236.3	616,754.1	684,861.3	690,560.9	
Canada	73,977.2	77,965.2	75,836.3	79,036.0	95,590.1	97,968.0	105,364.2	101,960.8	115,291.9	110,376.3	117,458.7	120,710.7	129,401.2	138,841.6	159,136.5	174,149.7	175,723.9	184,098.5	201,768.3	
Japan	259,279.8	273,614.8	266,327.9	264,791.9	302,526.6	306,211.6	284,245.0	276,554.5	296,318.4	319,820.1	337,570.1	346,753.5	359,511.2	353,446.5	358,375.0	385,155.8	398,195.4	428,977.6	417,084.2	
Germany	331,248.0	357,506.0	359,763.4	340,304.2	371,081.5	393,154.5	378,138.1	380,318.1	427,554.2	457,591.1	442,737.8	446,487.2	443,814.8	417,126.6	456,797.7	453,030.5	454,263.0	490,492.6	517,442.2	
France	171,617.9	177,147.0	170,132.9	165,588.9	176,673.9	177,923.1	164,074.2	169,602.2	208,125.6	211,829.1	225,408.4	231,449.0	241,090.2	253,213.3	262,712.5	250,124.3	275,669.7	285,389.7		
United Kingdom	179,554.2	155,958.3	152,313.9	146,389.6	160,606.7	170,627.2	178,714.6	214,187.7	211,770.1	211,730.6	213,138.7	226,319.9	240,010.6	258,180.2	260,955.7	272,461.6	268,366.1			
Italy	133,009.8	143,056.4	137,116.5	146,113.5	154,279.2	148,395.5	151,015.4	169,133.9	178,735.8	175,185.1	178,892.8	183,535.6	215,112.4	231,784.2	248,465.4	233,876.4	239,926.3	235,867.1		
China	18,392.5	22,471.2	23,362.3	24,233.4	25,990.4	21,203.4	28,762.0	34,470.0	53,310.3	48,945.8	66,786.4	81,816.5	98,975.1	105,649.3	145,225.0	150,001.2	150,070.7	175,881.4	173,073.6	
South Korea	25,616.9	29,278.9	31,083.4	34,341.9	39,392.8	41,591.5	44,836.1	54,524.6	62,334.3	58,350.0	58,545.0	66,388.5	73,504.3	77,999.9	86,249.8	105,743.6	116,661.0	135,487.0	135,324.9	
Taiwan	36,996.4	39,805.3	40,547.5	44,492.7	52,315.1	51,976.0	63,303.1	75,869.6	80,420.9	80,797.7	84,079.7	93,066.1	99,236.4	107,579.3	115,837.1	125,399.2	126,365.8	128,677.1	133,681.2	
Singapore	22,422.7	22,524.0	22,987.3	24,446.3	28,222.4	30,343.0	34,101.7	39,331.3	51,585.4	59,910.8	63,480									

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Import penetration (percent)																			
United States	9.7	10.7	11.5	12.6	15.1	16.0	15.6	14.4	14.5	15.2	14.9	15.4	16.0	17.4	18.4	18.6	17.9	18.2	18.8
Canada	35.7	36.2	34.1	35.8	38.9	37.5	36.8	38.5	41.6	40.9	44.4	47.1	47.3	47.2	48.0	49.7	50.0	50.8	49.0
Japan	3.8	4.0	3.8	3.8	4.0	4.0	4.8	5.5	6.2	6.4	6.2	6.1	6.5	7.7	9.2	10.4	10.1	9.7	8.6
Germany	25.7	25.0	24.3	24.0	24.6	25.5	25.0	25.7	27.7	28.7	28.9	27.2	28.9	32.0	34.5	36.0	34.8	35.3	36.0
France	26.8	27.8	27.1	25.3	25.8	26.3	26.4	28.0	30.7	31.7	31.6	32.6	32.8	35.4	36.8	38.0	36.8	37.2	37.6
United Kingdom	27.0	29.1	27.9	27.1	27.4	27.7	26.0	26.5	31.2	31.1	31.9	34.7	33.7	35.8	34.7	35.8	36.3	38.8	37.7
Italy	25.1	25.8	25.9	23.6	24.2	26.5	26.3	27.9	29.8	31.7	33.2	34.6	31.9	33.3	31.1	34.1	33.5	34.7	34.3
China	14.4	13.2	10.5	10.7	13.9	17.6	14.2	13.0	14.5	12.3	13.1	14.6	15.9	18.7	19.6	23.9	23.3	24.1	21.5
South Korea	20.1	19.8	19.0	18.9	20.3	19.6	17.8	18.2	19.5	20.8	20.4	21.5	20.0	20.7	22.8	25.1	25.8	24.2	20.0
Taiwan	29.1	29.6	27.7	26.2	26.5	22.9	20.7	24.9	28.0	29.3	31.1	33.3	37.5	40.0	39.5	41.3	42.2	43.3	38.4
Singapore	89.2	90.4	95.3	93.5	92.9	93.0	85.4	81.4	93.2	100.0	102.1	109.7	109.6	121.4	138.2	148.2	153.6	148.2	144.6
Hong Kong	81.0	74.3	82.1	65.8	83.7	102.5	87.2	93.8	108.7	153.2	159.9	202.2	260.6	611.2	568.0	548.8	1,047.3	682.1	1,377.8
Argentina	10.5	11.8	7.6	6.4	6.1	5.0	4.3	4.9	4.8	4.4	4.2	7.5	12.5	17.9	20.7	19.7	21.4	24.0	22.8
Bolivia	48.5	66.0	28.6	33.2	43.1	41.3	37.9	39.1	24.6	26.8	27.0	32.0	34.0	39.6	35.6	39.2	41.2	48.4	50.8
Brazil	5.2	4.9	3.8	3.1	2.8	2.6	3.2	3.2	3.2	3.9	5.3	6.1	5.2	6.4	9.1	15.3	14.8	17.0	16.4
Chile	45.7	54.6	36.6	26.4	26.3	20.5	19.8	21.3	23.1	26.2	26.9	26.0	28.5	29.0	31.2	36.2	36.1	32.6	
Colombia	30.0	30.5	31.4	27.0	24.0	21.6	19.4	17.3	17.0	16.7	16.6	16.8	20.3	25.1	29.7	30.4	29.8	31.9	30.5
Costa Rica	51.3	33.1	24.7	27.4	29.4	30.4	26.2	28.9	27.4	36.1	37.9	38.6	41.9	44.8	45.5	45.0	50.1	63.8	84.1
Ecuador	61.5	57.6	46.0	38.4	40.4	41.2	34.0	32.8	31.9	26.6	24.5	26.8	27.6	29.2	30.5	36.2	36.0	34.6	37.6
Honduras	76.1	72.5	58.0	62.3	62.3	58.7	51.9	46.8	43.4	50.4	38.5	38.4	34.7	46.1	43.5	50.2	52.8	60.1	66.9
Jamaica	28.8	36.8	35.5	39.0	26.2	24.0	23.9	26.6	31.3	38.1	33.2	29.1	25.2	31.4	31.6	37.8	40.3	43.7	42.3
Mexico	21.2	24.3	16.7	12.0	13.6	14.0	10.3	10.5	12.7	18.1	20.3	23.7	32.0	34.1	37.2	34.8	38.1	38.5	39.0
Panama	118.5	130.2	141.6	126.4	137.9	131.9	105.4	93.3	143.6	100.1	95.5	98.0	90.6	86.5	83.7	80.3	82.5	85.4	85.5
Peru	15.3	24.0	22.8	17.1	14.3	11.8	13.5	12.9	11.9	11.7	14.1	18.4	20.8	23.7	27.2	30.6	30.6	31.6	29.7
Uruguay	22.8	22.3	16.8	10.0	8.4	8.0	9.9	11.1	11.7	11.1	11.0	12.8	18.2	27.3	30.7	28.6	32.3	35.2	35.4
Venezuela	57.5	64.1	63.4	34.9	36.3	37.0	29.3	26.9	35.1	27.7	22.4	29.5	30.1	32.8	30.4	30.3	29.7	34.9	35.5
All countries ^a	19.9	20.8	20.2	19.5	20.3	20.3	19.5	19.7	21.2	21.9	22.5	23.3	24.4	26.5	28.4	30.0	29.4	30.2	29.2
Imports																			
United States	260,012.5	288,085.6	291,207.5	336,931.8	443,258.6	473,766.6	467,746.8	461,656.7	478,824.4	495,560.2	481,414.4	476,478.8	524,128.5	593,102.4	661,807.1	694,339.3	712,563.9	798,973.0	901,694.1
Canada	75,771.3	78,877.1	65,171.4	73,716.0	89,855.0	94,437.6	95,229.9	110,052.5	125,720.1	119,439.1	121,055.9	122,897.4	123,838.5	133,000.8	150,420.6	158,436.1	162,425.1	186,162.5	193,693.6
Japan	60,797.0	63,969.7	63,138.5	64,829.5	72,441.2	75,725.3	92,206.6	106,446.0	131,726.7	145,715.0	150,084.2	153,772.8	156,260.9	176,579.4	204,900.6	239,380.5	242,108.6	239,832.0	214,747.4
Germany	183,288.2	170,369.0	163,355.8	172,314.6	178,322.6	186,246.3	203,142.6	217,616.9	237,466.5	249,886.6	281,082.1	322,460.2	330,684.5	338,472.5	368,048.3	397,011.5	376,445.9	391,079.7	419,379.4
France	147,814.5	148,564.3	151,491.0	140,781.6	145,131.1	151,528.9	158,016.0	171,936.6	197,324.4	214,007.9	217,483.0	224,675.5	222,994.5	224,860.2	243,741.3	254,502.7	246,168.6	257,761.6	282,485.5
United Kingdom	141,465.4	142,460.9	138,881.2	142,651.5	152,936.5	159,744.9	153,667.9	165,047.9	204,038.3	209,631.8	204,976.1	203,281.0	211,713.5	226,639.1	235,370.4	246,758.4	253,197.5	287,901.6	308,158.0
Italy	92,312.2	86,785.7	83,841.8	80,666.7	90,093.7	98,145.9	100,205.8	112,608.1	126,899.9	136,993.3	139,168.9	143,551.0	147,570.6	137,428.2	150,591.7	164,995.3	160,654.9	175,966.7	189,933.9
China	18,458.2	18,034.8	15,769.9	18,566.1	27,677.6	45,765.5	39,774.9	40,595.0	51,277.7	47,710.5	48,133.1	60,394.1	79,655.1	124,843.3	138,966.0	153,207.5	162,255.5	173,336.8	167,428.4
South Korea	19,446.6	20,416.4	20,413.4	23,165.9	27,805.5	27,730.6	30,554.1	36,676.9	42,874.5	49,617.2	54,314.6	61,527.0	57,824.6	63,451.0	78,450.4	96,716.0	105,897.4	102,726.4	66,968.9
Taiwan	19,948.2	20,057.0	18,404.1	19,547.7	22,334.4	20,746.1	23,804.4	32,737.2	43,211.9	46,307.5	47,069.4	54,375.8	63,894.1	71,741.9	73,484.6	82,435.4	81,103.7	93,550.1	89,348.4
Singapore	26,230.0	27,065.3	28,381.1	29,176.4	30,308.2	27,886.4	27,573.7	32,672.0	40,838.4	47,182.7	54,524.1	61,252.2	67,384.8	80,212.4	92,970.9	109,422.4	112,840.7	118,504.8	104,335.8
Hong Kong	34,360.4	36,937.8	36,285.6	36,472.3	43,793.1	42,730.7	45,547.8	55,477.3	75,910.0	74,782.5	88,219.3	106,374.6	123,926.7	120,075.3	144,297.6	155,622.8	153,508.8	173,490.8	151,930.7
Argentina	15,357.4	13,825.0	7,340.6	6,430.3	6,404.7	4,974.8	5,498.6	6,370.2	5,485.9	4,507.8	4,433.6	5,852.1	15,052.0	18,236.7	23,115.5	20,021.7	23,229.2	29,123.3	30,159.0
Bolivia	1,000.4	1,209.0	52.2	48.2	65.0	69.3	63.8	68.1	534.3	581.2	605.7	877.5	1,004.2	1,303.3	1,232.6	1,378.6	1,485.7	1,985.0	2,194.4
Brazil	18,414.4	16,533.9	13,598.9	9,986.6	9,580.0	10,071.9	13,455.7	13,206.1	12,831.6	16,342.6	16,695.0	18,009.5	16,901.4	22,962.1	30,917.9	47,042.6	47,086.9	57,921.6	57,690.4
Chile	6,062.3	8,027.0	4,146.4	3,132.6	3,964.5	3,346.5	3,638.3	4,322.6	5,058.9	7,046.2	7,093.2	7,483.8	9,554.4	10,664.4	11,707.9	14,373.5	15,699.8	17,335.9	16,641.5
Colombia	6,405.2	6,960.5	7,133.4	6,139.7	5,682.1	5,444.9	4,743.4	5,014.2	5,452.2	5,594.1	5,721.2	5,637.9	7,579.0	9,841.9	11,891.9	12,637.0	12,521.4	14,240.4	14,200.7
Costa Rica	1,541.0	1,165.6	757.1	875.5	1,059.0	1,125.1	1,101.3	1,247.8	1,210.3	1,601.8	1,746.5	1,895.7	2,298.9	2,827.2	2,897.0	2,714.8	2,996.6	3,512.8	5,269.9
Ecuador	3,038.8	2,733.7	2,416.0	1,923.4	1,851.3	1,878.3	1,804.4	1,675.0	1,432.3	1,493.8	1,528.7	2,162.9	2,355.1	2,399.1	3,179.9	3,271.0	2,757.4	3,420.7	4,097.5
Honduras	1,142.0	1,110.7	817.1	832.2	919.2	899.0	745.9	791.8	839.0	909.6	957.8	939.4	953.3	1,544.9	1,560.3	1,857.6	2,084.7	2,615.6	3,063.7
Jamaica	917.8	1,369.8	1,368.6	1,605.3	1,061.9	987.0	953.3	1,205.2	1,396.7	2,042.8	1,738.0	1,542.0	1,253.4	1,655.4	2,030.6	2,499.0	2,511.0	2,650.6	2,256.

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Apparent consumption																			
United States	2,668,103.6	2,681,845.8	2,538,505.1	2,683,774.8	2,941,261.3	2,962,656.1	3,003,626.1	3,209,715.6	3,299,961.9	3,258,119.5	3,221,100.9	3,102,270.9	3,274,417.8	3,405,103.2	3,593,419.6	3,723,559.0	3,972,002.1	4,379,093.8	4,800,297.6
Canada	212,442.6	217,966.4	191,353.0	206,125.5	230,848.8	252,016.7	258,923.1	286,096.8	302,415.7	292,288.9	272,841.8	260,978.7	261,776.5	281,987.8	313,336.9	318,976.9	324,754.8	366,363.8	395,099.8
Japan	1,616,253.4	1,604,108.6	1,642,557.7	1,705,938.0	1,791,713.6	1,878,343.7	1,902,635.8	1,947,768.6	2,128,502.2	2,261,440.0	2,413,036.6	2,534,909.3	2,414,599.5	2,297,920.4	2,228,480.0	2,309,700.9	2,400,835.1	2,485,238.9	2,495,004.4
Germany	713,673.6	682,711.0	671,139.8	717,152.3	725,663.1	731,195.4	811,409.8	846,404.0	858,401.1	870,592.9	973,982.0	1,184,553.0	1,143,428.8	1,058,446.9	1,066,372.9	1,104,168.5	1,080,875.7	1,106,636.9	1,166,413.4
France	552,338.9	535,003.3	558,575.9	556,271.8	563,045.1	575,922.8	598,242.4	613,643.2	641,995.4	675,603.3	687,894.4	689,911.6	678,876.4	635,461.0	661,714.5	668,901.5	668,115.0	693,502.7	752,202.5
United Kingdom	524,666.3	489,803.7	498,378.1	527,324.0	558,682.4	576,182.4	589,921.7	622,947.2	654,542.2	674,858.2	642,318.8	585,822.7	628,350.1	633,578.7	678,446.5	690,221.7	696,828.9	742,545.5	816,472.1
Italy	368,462.3	335,741.0	324,310.5	342,069.5	372,809.4	370,800.2	380,908.7	404,073.7	426,197.9	431,612.9	419,544.8	414,916.8	463,032.1	413,163.5	483,971.6	483,717.6	480,079.6	507,776.9	554,545.8
China	128,581.2	136,149.1	150,896.7	172,811.2	199,385.6	260,344.4	279,127.4	312,786.7	354,815.8	387,981.6	367,360.6	414,602.0	500,823.1	666,442.4	709,788.0	642,231.2	695,741.2	717,986.6	779,305.8
South Korea	96,670.5	103,116.5	107,616.5	122,816.2	136,815.4	141,734.7	171,647.6	201,385.0	219,402.9	238,000.7	266,779.9	286,494.5	289,064.2	306,174.0	343,397.1	385,565.8	410,660.4	423,696.9	335,061.8
Taiwan	68,642.0	67,792.0	66,431.6	74,478.2	84,413.0	90,730.7	115,028.0	131,538.4	154,399.2	158,031.6	151,117.7	163,391.2	170,342.6	179,511.1	186,240.3	199,706.0	192,257.8	216,200.5	232,632.8
Singapore	29,414.5	29,925.1	29,777.5	31,213.9	32,641.0	29,992.5	32,281.1	40,152.6	43,806.0	47,201.5	53,392.7	55,838.2	61,508.8	66,063.7	67,255.2	73,836.4	73,470.9	79,954.8	72,138.2
Hong Kong	42,434.5	49,681.9	44,207.9	55,416.2	52,319.2	41,675.1	52,258.9	59,155.5	69,845.6	48,809.0	55,183.5	52,621.5	47,546.9	19,645.7	25,402.7	28,355.3	14,658.0	25,434.9	11,027.4
Argentina	146,262.0	117,032.1	96,574.3	99,851.5	104,979.8	100,066.8	127,090.6	130,249.0	113,952.3	102,131.2	106,476.1	114,108.2	120,030.3	102,165.2	111,429.5	101,656.8	108,411.3	121,518.1	132,220.0
Bolivia	2,063.2	1,831.0	1,825.2	1,452.3	1,513.7	1,681.7	1,683.4	1,744.0	2,168.7	2,170.9	2,247.3	2,740.1	2,950.3	3,290.1	3,464.3	3,520.4	3,602.8	4,100.4	4,315.8
Brazil	355,278.9	339,243.2	357,463.6	326,099.0	346,229.2	387,870.5	419,934.2	414,685.3	400,321.9	419,743.8	314,301.8	295,814.8	326,934.9	357,607.4	341,490.3	308,037.1	317,890.0	339,889.7	351,037.6
Chile	13,258.1	14,691.1	11,328.4	11,848.8	15,100.7	16,321.3	18,408.0	20,252.2	21,891.8	26,930.8	26,355.8	28,785.7	33,519.7	36,834.2	37,492.0	39,733.7	43,491.0	47,352.3	50,971.9
Colombia	21,317.0	22,820.1	22,707.7	22,717.6	23,716.5	25,181.7	24,506.1	28,966.8	32,023.4	33,423.1	34,498.3	33,499.9	37,386.0	39,187.3	40,075.0	41,589.1	41,973.4	44,685.1	46,632.1
Costa Rica	3,003.3	3,374.8	3,059.3	3,198.3	3,605.3	3,704.5	4,201.5	4,320.0	4,415.1	4,446.0	4,607.7	4,906.0	5,489.8	6,314.4	6,372.6	6,035.7	5,978.6	5,509.7	6,267.7
Ecuador	4,938.5	4,749.6	5,253.0	5,014.5	4,582.5	4,563.2	5,306.6	5,103.7	4,490.5	5,612.0	6,231.6	8,063.8	8,541.6	8,224.8	10,435.2	9,034.2	7,650.9	9,885.1	10,887.5
Honduras	1,500.9	1,532.0	1,409.3	1,336.4	1,475.8	1,530.6	1,436.4	1,691.3	1,933.5	1,805.5	2,487.2	2,443.8	2,745.5	3,353.6	3,586.8	3,700.2	3,950.9	4,354.4	4,577.2
Jamaica	3,185.6	3,718.2	3,856.7	4,116.0	4,058.9	4,106.5	3,996.6	4,525.1	4,460.2	5,365.9	5,242.3	5,301.9	4,966.9	5,274.0	6,419.6	6,616.3	6,235.2	6,058.8	5,335.4
Mexico	140,424.2	151,162.1	136,509.0	117,088.3	135,200.3	148,204.8	150,445.1	155,157.7	184,364.2	189,020.0	194,424.9	208,540.7	208,832.3	202,536.3	215,030.1	195,673.5	216,463.9	267,239.8	305,116.9
Panama	5,028.5	6,190.6	7,409.0	5,910.3	7,420.4	7,525.5	7,289.3	6,599.2	5,530.3	6,548.6	7,386.3	9,120.0	11,360.4	11,269.5	13,693.3	15,654.5	15,971.6	15,585.7	15,204.3
Peru	25,683.3	21,949.5	20,655.8	18,369.1	19,238.0	20,766.1	23,678.0	28,291.0	23,151.9	18,557.6	17,577.0	15,151.6	16,046.1	17,306.3	20,186.0	20,228.8	21,908.5	23,517.5	25,464.2
Uruguay	7,051.7	6,975.6	6,087.5	5,755.6	6,516.6	6,734.9	7,302.5	8,076.6	8,000.9	9,053.5	8,749.2	9,029.4	9,132.9	9,023.9	8,699.1	8,685.7	8,482.9	8,972.4	9,473.8
Venezuela	28,540.8	28,896.1	32,175.9	26,332.9	27,040.6	27,997.1	34,228.7	40,093.8	44,220.9	30,474.5	35,589.7	40,438.4	47,614.6	40,962.5	31,815.2	38,057.0	33,817.7	43,236.3	44,488.9
All countries ^a	9,524,255.1	9,266,893.7	9,279,960.8	9,701,090.7	10,378,420.4	10,782,000.6	11,399,202.8	11,970,824.4	12,649,619.9	12,865,354.0	12,948,142.1	13,299,428.0	13,505,080.2	13,419,088.8	13,873,191.2	14,233,813.5	14,775,285.9	15,700,763.6	16,597,778.1

High-technology industries^b

Production																			
United States	270,437.5	269,171.9	278,590.4	289,409.5	322,567.2	334,652.8	344,912.5	322,492.8	339,828.7	340,077.4	355,698.2	366,095.6	386,378.2	379,726.7	391,992.3	439,229.7	527,736.3	652,035.7	765,143.0
Canada	9,360.3	9,556.5	8,687.0	8,372.0	9,803.6	11,090.0	11,847.2	13,587.4	14,825.7	15,572.7	16,201.8	17,166.3	18,144.5	17,853.3	19,859.5	23,447.9	25,241.2	29,665.3	34,617.9
Japan	147,290.6	162,787.5	169,881.6	183,160.7	210,599.7	219,134.3	221,028.3	228,272.0	257,228.7	273,311.4	288,357.1	308,576.7	286,802.1	283,219.9	271,721.4	306,790.2	347,284.1	396,251.5	433,188.3
Germany	58,683.8	58,370.9	58,346.1	58,787.6	59,832.4	61,441.8	64,826.2	67,694.9	70,790.8	72,808.1	78,813.8	83,239.0	82,391.8	85,172.3	88,210.8	94,147.6	97,955.3	105,393.6	114,451.2
France	45,800.7	45,389.7	46,245.3	46,302.8	49,703.4	49,414.3	50,138.1	56,882.0	60,235.6	64,080.7	65,272.5	66,637.4	64,875.4	65,936.8	69,157.1	71,643.9	77,870.7	83,573.2	
United Kingdom	50,218.5	46,742.3	47,049.4	48,259.5	51,809.9	54,425.8	58,948.8	63,345.2	65,892.9	66,151.6	68,624.4	66,015.9	69,315.8	65,781.3	73,332.1	78,583.1	88,326.0	99,570.3	115,094.8
Italy	20,019.2	18,505.9	17,659.0	17,902.8	18,426.5	18,031.7	18,004.5	18,749.4	18,673.3	19,410.1	19,375.2	18,645.8	24,263.0	22,598.6	24,512.1	25,878.0	27,891.1	30,392.9	33,255.7
China	4,312.9	4,652.6	5,080.5	5,809.3	7,215.2	11,619.3	12,702.8	15,302.1	19,370.6	21,572.2	19,959.2	22,911.7	27,374.6	33,730.8	37,969.8	40,435.8	46,986.2	55,341.9	61,746.6
South Korea	7,904.7	8,902.1	9,227.4	11,356.9	14,351.4	14,666.5	19,871.4	25,680.6	30,254.4	29,886.8	32,708.0	32,904.3	33,643.5	38,013.6	45,029.4	58,610.8	62,821.9	66,109.1	65,488.4
Taiwan	9,675.7	9,776.4	9,735.0	11,534.4	13,845.5	14,553.7	20,553.7	24,538.8	28,167.2	29,661.8	29,848.4	31,776.7	33,313.4	38,871.3	41,862.5	49,012.2	54,619.9	62,128.9	69,170.6
Singapore	5,099.8	5,307.8	4,922.2	6,245.7	8,377.8	8,400.9	10,571.3	14,929.3	18,186.0	13,407.4	14,827.0	15,473.6	17,455.9	20,445.1	25,367.7				

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
Exports																				
United States	54,961.1	54,901.3	45,872.7	50,971.6	53,348.4	57,614.1	62,254.6	66,915.4	81,057.3	90,766.3	102,834.8	109,634.6	116,896.5	113,996.6	125,951.0	140,940.2	156,816.8	180,591.8	189,631.7	
Canada	5,034.3	5,779.7	5,954.0	5,732.7	6,902.5	7,248.8	7,694.5	7,952.2	8,427.4	8,828.8	10,357.6	11,957.7	12,092.3	11,771.3	14,123.9	17,143.0	17,848.4	18,939.3	21,131.2	
Japan	26,910.9	32,728.6	33,761.1	40,007.1	52,711.5	52,704.8	53,133.3	53,766.8	63,117.6	68,301.2	72,071.7	75,109.8	77,819.7	78,005.9	81,305.3	90,434.8	90,762.3	97,831.3	92,769.5	
Germany	23,723.7	32,226.5	34,840.2	31,180.7	35,445.8	35,431.4	32,524.1	32,857.7	38,599.4	43,669.0	41,220.9	45,307.9	43,445.9	42,924.5	47,971.1	48,611.2	48,046.9	56,966.3	62,314.9	
France	14,884.1	17,015.3	21,973.7	17,299.0	19,863.8	19,021.2	17,232.1	19,388.7	23,177.3	26,466.7	25,903.5	31,486.8	32,122.2	35,433.0	36,673.7	41,477.5	39,069.1	47,417.0	51,349.6	
United Kingdom	24,080.5	24,008.0	24,894.6	24,458.3	28,075.4	29,288.8	31,340.3	29,113.3	39,241.1	38,305.6	40,327.7	40,354.7	38,570.6	45,364.1	48,890.7	58,182.4	60,000.0	61,503.7	61,662.6	
Italy	7,992.9	9,622.2	9,499.4	9,197.5	10,466.3	11,565.0	10,418.6	10,261.8	12,478.5	13,180.2	13,473.0	13,206.9	14,386.1	16,140.0	16,833.6	17,964.8	16,490.7	16,484.6	17,156.7	
China	811.7	875.0	847.9	963.5	1,349.7	971.3	1,336.0	1,629.6	3,258.9	2,910.1	4,921.4	5,917.5	8,420.0	9,488.1	14,375.5	17,502.3	19,546.0	23,312.6	26,591.2	
South Korea	2,258.2	2,367.4	2,260.1	3,137.8	4,202.3	4,640.9	6,718.5	8,964.0	11,422.9	11,539.0	11,641.5	13,690.3	16,817.2	17,884.2	20,286.7	27,594.5	28,733.9	35,122.2	33,088.8	
Taiwan	4,468.2	4,807.9	4,457.1	5,415.3	6,783.7	6,044.0	8,374.6	11,826.6	13,749.4	14,772.9	16,048.8	18,193.9	20,829.5	23,879.6	28,046.6	35,275.5	38,765.7	42,783.9	48,160.7	
Singapore	4,282.2	3,774.9	3,667.4	4,761.8	6,152.9	6,517.9	8,389.1	11,787.2	17,210.1	19,945.3	22,383.8	24,130.0	27,718.7	34,158.7	46,515.3	58,456.1	61,927.6	66,365.6	61,647.2	
Hong Kong	3,295.2	3,673.1	3,342.3	4,233.5	5,663.9	5,239.2	5,496.4	7,676.8	11,277.5	12,020.8	13,475.0	14,434.2	16,357.1	19,126.7	22,943.3	27,931.4	26,411.3	27,424.9	24,606.5	
Argentina	268.1	313.5	371.1	190.4	203.0	217.4	205.0	165.6	198.7	209.7	254.7	294.0	264.4	261.1	301.6	380.0	404.6	463.2	420.5	
Bolivia	0.5	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	9.2	3.7	11.0	21.0	61.3	7.0	166.3
Brazil	963.5	1,201.3	1,020.2	772.7	928.1	883.3	1,356.1	1,597.6	1,703.5	2,098.5	1,735.0	1,492.2	1,466.5	1,309.0	1,294.5	1,353.0	1,731.1	2,105.0	2,739.8	
Chile	8.9	11.6	15.2	5.6	32.1	5.9	64.7	18.1	9.6	12.9	60.2	29.2	36.3	44.2	37.7	44.0	56.8	59.8	95.4	
Colombia	53.1	59.1	45.2	44.0	43.5	42.7	39.0	45.6	28.0	31.7	26.8	53.7	55.1	217.7	275.9	382.3	164.4	190.9	199.3	
Costa Rica	19.1	20.2	18.1	16.8	13.6	13.5	13.7	14.8	16.2	17.5	17.9	27.4	33.4	37.8	40.0	50.0	54.9	240.5	1,375.9	
Ecuador	46.9	37.6	7.7	8.4	3.9	5.9	3.7	3.4	2.7	1.8	3.1	5.7	6.7	11.2	15.8	27.2	26.3	28.6		
Honduras	3.5	3.5	2.2	2.5	5.6	4.3	2.6	1.2	1.5	1.9	0.6	1.9	0.8	1.4	1.9	2.0	5.3	6.5	2.9	
Jamaica	46.9	14.0	31.0	24.6	12.2	45.6	16.3	9.5	12.0	31.2	17.1	10.7	9.3	8.2	14.5	16.8	17.6	11.8	1.9	
Mexico	251.2	244.8	185.6	1,514.2	1,878.5	1,847.5	155.7	428.7	738.3	1,452.0	958.2	1,200.8	6,046.1	6,750.8	9,960.0	13,278.2	15,693.5	19,771.0	28,233.5	
Panama	9.4	8.0	12.2	7.4	8.6	13.4	17.7	15.6	212.7	10.7	15.1	15.8	29.3	15.7	19.5	2.0	29.2	19.8	21.9	
Peru	20.7	21.8	12.4	6.7	6.7	10.3	5.4	3.6	4.4	10.5	8.5	6.6	11.6	10.7	18.7	23.1	29.2	28.1	33.0	
Uruguay	11.4	10.0	12.9	11.5	9.3	8.9	9.1	10.4	10.1	7.7	10.3	20.7	19.9	16.7	18.4	30.6	26.3	25.6	28.7	
Venezuela	4.7	10.6	6.2	1.3	2.0	5.8	2.3	2.7	6.1	18.5	26.8	15.6	28.1	31.5	38.4	47.4	51.2	43.5	57.7	
All countries ^a	214,248.7	235,725.7	234,133.4	241,915.8	281,232.9	288,398.1	300,227.5	322,983.7	388,553.8	428,012.5	457,350.2	494,127.2	529,107.7	571,670.4	650,277.3	752,797.4	797,834.9	901,270.2	958,713.2	
Import penetration (percent)																				
United States	10.9	13.3	12.9	16.0	19.6	19.7	18.9	20.7	22.6	25.3	24.9	25.5	27.4	30.3	33.0	33.0	28.7	26.4	25.3	
Canada	71.6	78.0	82.4	88.7	93.6	84.6	79.9	75.1	80.3	79.7	84.0	87.6	83.2	81.5	81.3	80.6	74.1	64.1		
Japan	7.7	7.6	6.7	6.7	5.9	6.3	6.7	7.1	7.5	7.9	8.6	8.2	9.5	10.8	14.1	16.7	15.7	14.5	12.2	
Germany	35.1	41.0	43.4	41.8	44.7	45.0	44.0	45.9	50.8	55.1	56.2	58.1	58.9	56.3	60.4	61.0	56.7	56.6	54.8	
France	32.9	43.7	50.7	41.6	44.3	43.3	38.2	40.9	48.8	51.9	48.8	55.9	52.1	55.3	57.9	60.3	56.5	60.0	60.3	
United Kingdom	39.3	41.9	42.1	43.4	45.3	44.9	40.4	38.9	49.4	50.1	52.6	53.3	50.5	61.1	58.4	63.5	61.0	60.4	52.9	
Italy	43.4	52.8	54.5	51.9	59.4	64.5	64.1	66.9	77.6	76.0	82.8	85.9	71.5	72.4	69.0	69.1	67.1	62.1	58.7	
China	22.4	23.0	19.9	25.0	45.7	45.2	29.3	29.6	31.4	26.6	29.4	30.9	35.0	40.5	42.3	47.4	45.8	48.8	50.9	
South Korea	36.5	33.1	30.5	33.3	33.8	32.6	29.7	27.9	32.6	35.0	32.1	38.3	41.7	38.1	37.3	37.8	38.5	43.0	44.4	
Taiwan	33.7	36.1	38.6	33.2	31.9	27.2	23.4	26.1	27.8	30.4	31.9	34.6	38.1	37.3	39.1	43.2	43.0	47.4	45.4	
Singapore	97.1	84.6	90.6	80.2	68.3	68.8	53.6	53.0	60.8	111.5	120.6	125.5	128.1	137.7	172.4	180.0	191.6	184.1	169.5	
Hong Kong	85.7	67.1	69.1	64.1	89.5	119.7	83.3	85.0	108.0	162.7	195.6	216.3	203.7	287.7	339.0	260.5	219.2	196.8	167.0	
Argentina	29.1	32.7	25.6	19.8	18.0	17.2	15.4	16.8	15.5	15.0	15.2	40.3	68.3	45.2	49.4	41.2	44.3	41.9		
Bolivia	119.9	163.2	74.5	85.2	78.1	97.0	81.9	72.4	60.4	66.9	65.6	70.1	79.2	84.9	64.1	87.9	102.2	83.0	76.5	
Brazil	14.8	13.4	12.3	10.5	8.6	9.9	11.3	9.8	8.8	9.4	21.7	19.4	20.4	20.3	23.5	31.8	34.1	36.2	32.8	
Chile	89.5	99.6	89.7	66.4	64.9	55.4	50.0	50.1	57.3	64.0	69.3	67.5	70.6	63.4	68.1	79.6	77.3	72.9	68.9	
Colombia	49.1	53.4	54.6	53.7	44.3	36.2	33.5	32.4	36.2	34.0	36.5	34.2	40.3	50.8	65.4	63.5	59.7	66.3	62.2	
Costa Rica	113.2	71.2	48.7	53.6	62.2	56.2	50.2	45.5	48.7	51.6	50.4	52.8	49.1	48.1	51.8	47.3	48.1	70.2	134.0	
Ecuador	116.7	113.5	83.7	69.9	82.0	100.3	69.2	70.0	48.1	60.2	57.3	65.2	60.0	66.1	22.1	79.9	69.3	77.6	78.9	
Honduras	164.3	176.7	171.6	204.5	197.7	196.6	158.9	139.1	146.7	151.3	87.4	84.7	76.4	82.9	77.7	81.9	79.7	87.1	87.6	
Jamaica	1.2	5.8	6.4	129.3	77.7	68.5	84.4	72.1	83.8	78.6	83.3	68.7	52.4	60.3	65.3	73.8	81.7	92.8	83.1	
Mexico	51.0	59.3	43.9	61.4	51.8	54.5	35.1	34.2	43.9	53.3	55.3	69.5	117.4	123.2	138.1	172.1	183.4	166.1	189.7	
Panama	105.8	113.5	144.1	154.3	141.1	138.8	101.7	93.2	382.2	175.7	170.7	216.3	189.0	172.6	147.8	137.4	101.5	99.1	99.7	
Peru	28.5	35.5	47.2	37.6	35.3	30.6	31.0	29.7	26.5	35.5	32.9	38.5	39.1</							

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Imports																			
United States	27,376.1	33,592.7	34,899.9	44,938.1	63,605.2	65,705.4	65,175.4	66,404.3	75,027.7	83,165.1	82,971.0	86,806.9	100,180.2	112,335.5	127,930.4	146,320.5	150,382.4	169,466.4	193,898.4
Canada	7,952.8	8,793.5	7,557.6	8,527.5	10,634.0	10,463.7	10,984.6	12,022.5	15,924.3	15,136.8	16,289.3	18,208.8	19,031.9	18,819.3	21,377.1	25,102.3	26,835.8	30,653.6	30,539.2
Japan	9,754.7	10,390.9	9,506.6	10,232.4	10,201.2	11,161.6	12,391.0	13,809.6	16,776.5	18,555.6	21,520.7	21,951.9	23,353.8	26,433.6	32,800.7	44,743.4	48,496.6	50,575.4	46,445.8
Germany	19,879.9	22,609.1	22,458.1	23,026.8	24,170.6	25,433.3	27,458.7	29,766.8	33,580.1	37,243.7	44,726.4	48,389.3	48,067.7	48,254.8	53,835.0	58,566.0	58,028.1	63,108.6	68,039.0
France	14,946.8	20,800.3	24,061.1	19,718.7	22,262.2	21,467.9	19,179.9	21,153.4	29,215.9	33,287.3	33,043.0	39,748.9	35,216.1	35,075.7	37,240.7	38,380.9	39,540.3	45,752.1	51,112.8
United Kingdom	18,538.4	17,759.3	17,457.9	19,587.8	21,905.4	22,729.4	21,466.6	23,747.4	30,190.8	33,527.4	34,158.1	32,368.9	33,267.2	37,062.3	39,832.4	44,826.6	50,150.8	58,092.6	61,776.6
Italy	9,486.6	10,356.1	10,081.9	9,677.1	11,639.5	12,570.7	12,890.4	14,492.9	17,266.7	17,583.0	19,314.2	20,029.4	19,713.4	17,894.7	19,261.4	20,398.7	21,226.1	22,785.9	25,209.5
China	1,011.0	1,118.3	1,033.1	1,549.9	3,765.6	6,954.0	4,457.1	5,450.8	7,008.5	6,514.6	6,448.5	8,029.0	11,421.0	17,146.8	21,085.7	22,501.4	30,472.1	34,984.5	
South Korea	2,698.0	2,747.6	2,659.8	3,622.5	4,639.1	4,326.8	4,930.5	5,812.2	8,319.0	8,720.9	9,167.7	10,694.9	10,826.8	11,565.8	13,917.7	17,948.2	20,777.2	23,403.9	18,060.5
Taiwan	2,768.0	2,976.7	3,375.2	3,286.3	3,808.9	3,633.3	4,384.4	5,786.6	7,286.1	8,635.2	9,326.7	11,180.9	13,146.2	14,594.8	16,002.0	20,781.7	21,629.0	26,866.3	27,532.5
Singapore	4,409.2	4,020.4	4,293.1	5,625.1	6,298.1	6,273.3	6,167.1	7,918.6	10,415.0	12,892.5	15,264.1	17,488.7	19,254.4	24,204.6	31,209.0	39,281.9	43,680.4	45,354.5	42,048.1
Hong Kong	4,075.2	4,075.4	3,990.9	4,464.6	6,275.0	5,666.3	5,995.0	7,648.6	11,015.4	10,925.1	13,509.7	16,522.2	20,441.8	21,334.7	25,987.9	34,285.7	36,496.1	42,062.1	40,508.6
Argentina	2,356.3	2,490.0	1,238.3	992.8	895.1	875.9	954.4	1,124.5	857.8	707.1	764.8	1,402.7	2,653.8	3,080.8	3,808.1	2,839.3	3,166.0	4,142.2	4,350.9
Bolivia	110.2	166.3	48.7	46.7	34.7	54.1	53.4	39.4	37.1	50.2	57.9	65.4	106.7	168.6	75.3	204.5	292.2	316.6	254.0
Brazil	2,833.2	2,396.6	2,227.0	1,786.9	1,487.9	1,936.1	2,655.1	2,790.0	2,932.5	3,567.9	3,836.9	4,522.5	4,018.9	4,610.7	5,364.7	7,665.1	9,159.8	11,246.0	10,707.6
Chile	633.8	739.6	516.1	304.5	335.8	309.1	343.4	373.9	532.8	830.8	954.7	1,030.7	1,289.2	1,057.4	1,228.9	1,750.8	1,875.5	2,143.4	2,489.8
Colombia	637.2	724.4	708.1	690.0	550.1	454.1	442.6	527.3	611.4	586.2	755.1	627.3	1,080.7	1,182.9	1,926.9	1,872.7	1,864.6	2,479.1	2,665.8
Costa Rica	245.0	187.4	101.8	101.1	118.5	114.0	118.1	122.5	127.2	143.8	143.6	208.4	233.4	306.8	442.1	287.9	248.5	363.5	1,110.6
Ecuador	426.7	365.2	381.5	273.5	337.4	339.6	326.5	285.1	250.5	262.3	236.4	478.1	328.7	328.3	316.2	458.1	282.9	463.8	519.5
Honduras	183.0	176.0	137.7	154.0	179.5	169.9	124.0	117.8	114.7	138.5	168.8	88.1	66.7	112.5	140.5	135.4	133.1	160.4	158.8
Jamaica	74.1	90.7	98.1	261.4	81.8	61.5	68.7	67.2	126.2	109.2	215.8	102.4	81.6	93.0	115.3	147.7	184.6	289.9	128.6
Mexico	2,645.4	3,420.4	1,828.7	1,645.0	2,204.3	2,527.9	2,315.0	2,323.6	4,002.2	4,785.4	5,469.1	6,963.9	9,077.6	9,642.2	11,739.6	10,863.6	13,168.3	16,660.2	20,170.4
Panama	565.8	533.8	548.5	405.8	413.5	234.6	332.3	324.5	1,308.4	584.6	636.8	1,190.8	1,117.7	1,142.3	989.3	793.2	575.8	641.9	722.0
Peru	376.4	474.0	607.1	349.5	265.0	284.8	376.6	450.4	235.0	238.3	259.8	310.6	361.5	370.2	546.9	890.4	943.1	1,059.2	999.6
Uruguay	162.4	241.2	244.1	92.9	82.2	76.5	109.4	128.7	143.6	135.8	149.3	266.1	207.5	267.5	274.1	335.6	406.0	408.1	
Venezuela	1,099.5	1,274.8	1,514.2	675.6	916.6	1,242.8	974.6	1,093.9	1,595.2	828.2	726.3	936.3	1,222.5	1,253.8	849.6	957.0	1,048.2	1,554.8	1,758.0
All countries ^a	207,587.3	228,005.1	228,182.1	237,500.4	278,980.0	288,771.8	293,750.1	315,754.7	382,486.5	418,897.0	444,685.9	484,255.1	513,308.3	557,653.8	635,293.9	740,193.9	791,397.7	897,719.1	949,233.3
Apparent consumption																			
United States	250,883.4	253,501.4	269,694.5	281,193.1	323,811.2	333,960.5	344,414.5	320,765.9	331,876.8	328,140.6	333,700.2	340,023.8	365,741.2	370,343.0	387,264.7	443,734.4	523,936.6	640,910.3	767,909.6
Canada	11,100.0	11,267.7	9,176.6	9,617.5	11,360.8	12,371.6	13,742.5	16,001.3	19,839.0	18,982.9	19,380.6	20,778.2	22,871.1	23,083.3	26,284.0	30,882.6	33,282.3	41,379.5	47,676.9
Japan	127,085.0	137,293.3	142,746.4	153,759.9	172,597.4	177,912.1	185,068.1	195,468.4	222,562.3	235,003.8	250,226.9	267,605.8	245,338.0	243,775.9	232,830.5	267,657.6	308,785.3	348,995.6	380,058.0
Germany	56,663.1	55,108.7	51,769.8	55,113.4	54,050.2	56,560.7	62,342.2	64,887.6	66,149.6	67,613.4	79,641.4	83,263.8	81,563.9	85,696.4	89,183.4	95,993.4	102,349.6	111,536.0	124,214.5
France	45,381.7	47,598.7	47,423.6	47,422.7	50,222.9	49,557.1	50,249.2	51,743.0	59,852.9	64,083.8	67,693.3	71,086.3	67,530.3	63,396.6	64,314.0	70,029.6	76,205.8	84,711.2	
United Kingdom	47,126.8	42,635.3	41,497.2	45,181.3	48,373.7	50,588.3	53,148.6	61,085.3	61,087.0	64,924.0	64,933.4	60,703.4	65,834.6	60,672.6	68,187.3	70,594.1	82,222.3	96,159.1	116,880.0
Italy	21,868.3	19,619.3	18,513.6	18,646.0	19,605.2	19,485.5	20,121.2	21,660.9	22,264.7	23,120.4	23,312.8	23,304.1	27,554.1	24,714.8	27,897.8	29,508.8	31,613.7	36,694.2	42,920.1
China	4,505.6	4,856.3	5,201.4	6,208.9	8,232.6	15,380.9	15,203.9	18,398.1	22,352.3	24,483.4	21,922.6	25,989.1	32,671.2	42,347.5	49,893.9	47,445.7	52,241.1	62,501.4	68,711.5
South Korea	7,384.6	8,297.3	8,715.7	10,870.7	13,707.9	13,286.9	16,609.1	20,820.0	25,508.0	24,890.8	28,573.2	27,912.7	25,944.3	30,343.8	37,281.3	47,518.0	53,950.8	54,390.7	40,682.2
Taiwan	8,210.8	8,247.3	8,740.9	9,889.7	11,929.2	13,341.9	18,701.5	22,166.1	26,225.9	28,412.5	29,269.6	32,294.7	34,517.5	39,086.7	40,496.6	48,114.1	50,316.1	56,656.7	60,668.0
Singapore	4,538.6	4,751.7	4,740.9	7,014.0	9,221.6	9,121.9	11,512.3	14,931.8	17,143.8	11,563.4	12,661.7	13,939.3	15,027.1	17,572.9	18,104.3	21,892.9	22,803.1	24,635.6	24,811.4
Hong Kong	4,756.8	6,077.6	5,772.7	6,962.9	7,008.9	4,735.6	7,192.7	8,994.0	10,203.9	6,715.3	6,905.3	7,637.2	10,033.8	7,414.8	7,666.6	13,159.1	16,649.6	21,369.8	24,257.6
Argentina	8,108.9	7,619.6	4,838.3	5,019.4	4,985.9	5,100.1	6,198.5	6,684.6	5,520.5	4,717.6	5,043.6	3,476.6	3,886.1	6,819.2	7,703.8	6,897.6	7,690.9	9,342.6	10,380.9
Bolivia	91.9	101.9	65.5	54.8	44.5	55.8	65	54.4	61.5	74.9	88.3	93.4	134.7	198.6	117.3	232.7	285.9	381.5	331.9
Brazil	19,119.3	17,822.0	18,043.7	16,980.1	17,263.5	19,489.4	23,451.7	28,425.6	33,494.8	38,147.8	17,655.8	23,283.7	19,730.0	22,730.1	22,804.0	24,096.9	26,847.9	31,025.3	32,623.2
Chile	708.5	742.9	575.6	458.3	517.5	557.5	687.0	745.9	930.2	1,297.5	1,376.9	1,526.9	1,826.1	1,667.9	1,805.0	2,199.3	2,427.3	2,940.4	

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Aerospace																			
Production																			
United States	120,033.1	115,071.4	114,291.0	117,952.6	128,437.8	136,570.4	143,736.6	148,585.4	151,114.9	146,615.9	153,668.9	155,250.5	150,421.6	128,962.7	112,222.2	106,317.5	123,340.7	132,712.8	137,112.7
Canada	3,530.1	3,447.0	2,582.9	2,274.3	2,837.3	3,224.8	3,630.1	3,977.7	4,543.9	4,927.9	5,364.1	4,918.6	4,518.8	4,115.4	4,534.8	6,096.0	6,398.7	6,909.6	7,391.9
Japan	5,118.3	5,322.5	5,277.6	5,467.7	5,875.7	6,375.4	5,992.4	7,199.4	7,649.5	7,305.0	7,250.7	7,133.5	7,565.0	7,643.3	7,041.2	7,044.9	7,166.6	7,507.0	7,403.6
Germany	8,457.0	8,035.7	7,943.7	8,252.3	8,511.4	8,509.8	8,772.3	9,376.5	9,835.1	9,676.4	10,158.2	9,316.6	3,830.8	9,828.6	9,642.8	9,878.3	9,728.6	9,910.6	10,229.8
France	18,446.4	17,561.6	17,889.7	18,216.3	20,792.7	19,345.8	18,575.0	19,307.0	21,707.8	23,222.0	24,852.6	24,507.1	24,462.4	22,681.9	22,231.0	21,943.1	21,733.7	22,667.0	23,602.4
United Kingdom	20,456.7	18,789.7	17,553.7	17,809.8	17,579.7	19,059.4	22,506.5	24,560.3	23,748.1	25,179.2	25,438.7	24,336.2	25,607.8	24,147.6	26,288.4	26,072.8	28,108.7	30,193.9	32,508.2
Italy	5,282.3	4,575.3	4,426.4	4,142.4	4,200.9	4,167.4	4,426.3	4,501.2	5,381.6	5,345.1	4,513.3	4,157.1	4,209.9	3,434.2	3,981.5	4,018.8	4,056.5	4,136.9	4,238.5
China	86.7	81.0	93.1	117.6	147.7	234.4	210.1	251.8	308.7	319.2	307.8	389.3	567.9	834.3	830.7	754.2	814.8	872.8	943.7
South Korea	94.0	115.0	129.4	162.7	174.0	209.6	277.5	424.3	500.4	547.4	693.6	496.4	442.6	730.4	640.8	1,904.8	3,280.7	3,066.0	
Taiwan	3,175.1	3,088.6	2,945.7	3,237.7	3,441.2	3,607.7	4,864.6	6,421.2	6,773.3	7,547.3	7,441.6	7,753.2	8,258.8	8,091.5	8,087.6	8,224.1	7,726.6	8,301.3	8,708.2
Singapore	251.2	244.2	309.8	407.3	472.0	642.1	661.9	706.9	765.2	583.3	677.9	679.4	934.4	961.9	976.7	971.6	937.5	992.4	1,008.8
Hong Kong	177.3	185.0	192.1	339.2	259.4	293.4	336.3	319.7	441.7	362.7	367.0	353.2	397.0	375.0	358.7	357.8	344.3	373.0	362.6
Argentina	178.6	107.1	80.5	86.4	96.7	83.5	99.4	111.1	97.2	69.8	63.0	75.7	87.4	83.2	86.9	83.5	87.5	94.8	98.9
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.1	1.7	15.5	191.6	252.2	268.9	577.4	1,138.4	
Chile	35.4	29.8	11.4	6.9	12.4	14.9	15.5	23.0	33.8	49.7	35.5	30.8	51.1	49.3	35.5	40.8	38.1	46.6	42.3
Colombia	89.2	78.9	65.9	88.6	102.5	72.6	81.7	104.1	93.8	103.1	96.7	85.6	77.6	47.4	42.0	112.7	91.2	54.0	49.4
Costa Rica	10.6	8.0	6.3	8.2	8.6	8.4	9.7	11.4	11.6	17.4	14.5	11.7	17.9	15.5	22.4	17.1	17.7	18.6	20.1
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mexico	11.8	13.3	10.4	7.9	8.4	10.0	8.7	10.8	18.5	19.0	17.6	16.0	14.9	14.1	14.5	17.9	20.6	27.4	31.0
Panama	3.9	4.0	4.8	3.8	8.3	8.3	8.3	7.7	6.7	5.3	5.7	3.1	1.9	1.1	1.1	1.2	1.1	1.1	1.1
Peru	0.5	0.3	0.2	0.2	0.3	0.2	0.5	1.2	1.5	0.2	0.3	0.2	0.4	0.7	0.8	0.8	0.8	0.8	0.8
Uruguay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venezuela	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All countries ^a	197,559.4	189,048.0	186,707.5	191,623.2	206,556.9	216,606.1	228,659.5	242,070.5	250,594.7	249,765.0	257,808.3	249,913.4	243,796.3	224,348.0	207,960.5	204,114.9	224,091.6	240,686.1	250,439.4
Exports																			
United States	28,047.8	27,066.1	18,127.4	18,989.4	16,553.1	21,135.2	22,891.9	23,039.5	27,694.7	35,672.8	42,174.3	45,355.4	46,527.9	39,097.1	36,418.9	29,727.1	36,007.2	43,953.0	56,461.8
Canada	2,229.6	2,315.4	2,554.9	1,963.4	1,976.5	2,358.7	3,048.2	2,664.1	2,683.2	2,971.8	3,857.0	4,483.3	3,219.6	2,782.5	2,959.9	3,587.7	3,839.3	3,830.6	5,480.3
Japan	280.0	351.2	471.9	384.0	343.9	282.4	252.4	350.4	474.9	659.2	633.0	734.5	790.1	670.9	660.7	572.7	876.9	1,405.3	1,858.6
Germany	3,577.4	10,114.9	13,090.8	9,441.0	11,280.3	9,231.4	5,419.8	5,703.4	8,508.4	12,178.6	10,570.7	13,454.3	12,442.7	10,774.7	10,193.0	8,928.9	7,642.9	10,862.7	12,223.0
France	4,438.1	5,905.5	6,880.9	5,861.2	7,566.1	6,032.2	4,082.8	4,907.0	7,492.2	9,939.4	8,859.5	12,932.5	12,949.3	13,902.4	13,538.4	14,358.9	10,667.0	13,261.2	13,103.2
United Kingdom	11,490.9	11,429.1	11,736.2	10,897.7	11,756.5	11,467.1	13,255.0	9,033.5	14,509.0	12,231.9	13,490.5	12,205.8	9,632.4	8,809.5	7,903.3	7,410.6	9,028.3	9,969.3	9,097.4
Italy	1,240.8	3,037.4	2,813.8	2,490.2	2,885.8	2,678.2	1,940.5	1,899.7	2,576.9	2,940.7	3,787.6	3,340.4	3,840.8	3,080.3	3,013.5	2,309.3	2,279.5	2,137.2	2,747.6
China	1.6	3.4	3.4	9.0	86.0	41.3	66.4	11.2	27.4	26.0	36.7	50.8	529.3	247.8	275.8	219.8	233.0	369.1	471.8
South Korea	334.8	319.2	110.2	163.5	266.0	446.8	503.7	113.7	150.8	226.3	214.8	261.3	300.2	200.2	223.2	257.7	224.0	748.0	963.2
Taiwan	2.0	1.6	0.8	0.0	1.9	3.5	1.9	3.7	5.4	17.3	4.3	40.5	7.5	18.1	8.4	12.1	28.1	34.7	65.4
Singapore	435.0	326.7	177.3	438.3	373.2	775.6	252.8	280.8	304.4	813.9	524.9	361.2	332.9	218.1	250.0	426.0	449.5	701.0	573.7
Hong Kong	101.9	35.7	45.9	80.0	56.3	68.3	96.4	68.4	94.4	74.7	89.8	70.8	95.8	79.3	71.7	96.9	102.5	112.1	107.1
Argentina	21.7	9.3	93.7	0.0	0.3	3.2	1.9	5.7	5.1	2.2	26.4	15.2	24.1	34.0	3.3	28.7	78.2	43.6	37.1
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	223.2	284.0	237.1	169.2	85.1	113.0	418.3	653.0	634.9	1,039.6	842.4	530.3	480.5	384.9	360.5	337.5	526.5	830.9	1,431.2
Chile	3.3	7.5	11.4	2.7	28.3	0.9	60.6	12.8	4.2	3.4	42.1	3.1	8.4	7.9	3.7	5.8	12.8	10.8	35.3
Colombia	6.5	5.9	3.5	1.3	1.2	0.9	0.6	1.5	0.0	1.7	0.5	14.1	8.6	145.3	185.1	216.1	4.0	4.9	9.2
Costa Rica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Ecuador	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jamaica	38.1	7.3	22.1	15.0	3.8	37.4	8.3	2.6	2.5	16.1	6.9	5.3	0.0	0.3	11.2	13.1	13.7	8.0	0.0
Mexico	28.5	10.4	15.6	81.5	67.6	70.9	30.7	7.1	29.4	401.1	106.7	119.8	141.1	150.6	272.5	391.8	228.8	195.1	1,125.0
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Peru	0.0	0.5	0.0	0.0	0.0	0.4	0.5	0.0	0.0	1.1	0.4	0							

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Import penetration (percent)																			
United States	7.2	8.7	7.2	6.5	7.7	9.3	8.6	6.7	8.4	9.6	10.3	10.4	11.1	12.2	13.5	13.3	11.6	13.1	18.3
Canada	70.8	71.8	82.8	80.4	66.3	72.3	76.2	64.3	78.6	67.9	63.6	78.8	67.1	57.5	49.7	45.5	49.7	56.6	66.6
Japan	36.3	36.2	28.2	32.8	25.6	29.8	35.6	32.2	33.1	34.3	43.0	43.5	45.3	40.6	45.0	35.8	32.6	45.1	50.7
Germany	38.4	90.3	158.2	92.1	112.8	81.0	58.6	56.2	77.9	119.6	100.0	1,551.1	1,035.8	111.5	105.0	84.5	73.7	115.8	150.8
France	25.3	49.4	59.5	42.9	45.5	40.6	25.7	27.9	42.5	53.0	45.0	63.3	55.2	55.6	53.9	49.3	43.0	51.2	53.2
United Kingdom	44.8	38.9	33.1	35.4	39.6	37.3	28.0	18.1	33.3	29.8	34.8	29.8	24.4	22.9	20.5	23.4	30.5	27.0	
Italy	29.2	53.0	44.9	47.8	53.7	48.7	39.9	36.2	38.3	42.6	74.6	75.8	81.1	75.6	61.7	49.5	52.8	48.2	66.4
China	114.8	23.0	41.3	80.0	59.6	70.6	63.8	55.2	43.2	56.2	47.5	44.8	58.2	75.1	66.4	86.7	89.4	90.2	86.3
South Korea	137.3	116.0	81.0	81.0	86.9	100.0	113.6	62.5	79.6	90.7	80.1	89.6	94.8	102.1	91.6	101.7	67.7	49.9	45.0
Taiwan	16.2	16.9	28.5	17.2	11.2	15.8	6.4	3.9	3.6	9.5	9.7	18.6	18.5	24.4	21.4	23.4	16.8	23.8	26.4
Singapore	100.3	105.4	84.7	91.1	78.2	92.3	53.8	53.2	51.7	91.6	78.0	76.5	69.5	72.3	73.4	80.5	89.5	92.0	78.5
Hong Kong	80.4	55.3	61.9	45.3	50.6	50.6	57.7	49.8	41.8	54.8	60.8	63.0	64.7	73.8	68.9	82.3	84.6	73.3	89.1
Argentina	62.8	72.6	89.0	49.4	8.4	13.6	37.3	33.1	38.8	41.0	66.8	48.4	83.6	89.9	87.7	85.1	98.2	87.9	85.7
Bolivia	172.7	210.7	184.6	168.6	168.7	128.7	105.5	100.6	100.5	103.6	94.1	96.1	95.3	98.5	88.7	117.7	188.4	105.2	85.3
Brazil	115.8	139.2	197.3	97.5	120.3	83.3	301.1	321.3	217.1	356.3	206.7	97.1	100.9	110.9	129.4	104.7	137.0	122.6	126.6
Chile	130.6	133.2	167.4	129.5	212.3	80.4	68.1	67.1	62.6	82.7	95.3	82.2	85.0	45.5	75.5	93.0	92.1	87.1	94.3
Colombia	62.7	70.3	60.9	54.2	33.8	27.6	23.0	34.6	32.8	32.5	45.1	36.7	53.7	84.6	97.2	141.6	77.6	89.8	83.2
Costa Rica	120.4	30.0	40.7	24.1	17.6	5.0	6.5	10.7	34.2	24.7	42.8	76.2	72.7	82.9	90.1	81.0	34.3	46.6	51.0
Ecuador	155.4	143.2	105.1	85.5	94.4	94.5	85.4	83.3	55.5	77.4	74.4	75.2	72.5	87.2	93.2	100.4	98.8	100.0	99.1
Honduras	165.7	167.5	186.9	177.8	182.7	170.5	169.3	154.4	159.0	179.3	98.1	96.5	93.6	92.9	85.3	97.6	103.0	176.3	109.6
Jamaica	0.1	0.5	0.4	134.8	38.0	26.2	306.2	140.9	86.3	35.7	87.5	84.2	52.4	69.2	235.6	134.8	115.7	106.0	108.7
Mexico	153.3	148.6	110.3	129.1	140.6	211.2	89.2	71.4	84.0	187.3	113.7	116.4	120.1	143.3	166.1	147.0	108.5	374.1	1,194.2
Panama	133.8	144.0	190.1	201.8	184.1	143.4	38.4	42.1	122.8	80.4	105.7	105.4	111.5	112.5	106.3	100.7	91.1	90.5	112.9
Peru	85.7	111.0	116.1	78.3	101.2	63.5	73.4	78.6	58.6	89.4	85.2	106.7	118.7	93.0	99.9	107.1	99.6	99.6	97.2
Uruguay	144.9	144.5	133.8	3.3	68.1	61.9	67.9	8.1	69.3	77.8	81.9	79.2	90.8	96.4	106.7	103.4	100.0	98.2	
Venezuela	202.7	223.3	213.3	203.3	224.9	220.8	136.4	98.6	115.0	85.4	91.6	87.2	88.0	88.7	86.3	98.7	87.0	100.0	105.0
All countries ^a	28.0	33.8	31.5	27.4	26.7	26.5	24.1	21.0	27.4	33.6	35.0	40.1	39.7	39.3	39.7	37.1	35.2	39.7	45.5
Imports																			
United States	7,188.0	8,453.8	7,355.5	6,763.0	9,102.4	11,513.5	11,253.2	9,035.7	11,224.6	11,745.8	12,975.5	12,878.3	13,025.8	12,511.2	11,857.0	11,867.8	11,513.9	13,330.9	18,031.1
Canada	2,894.4	2,928.0	1,731.2	1,876.2	2,000.6	2,535.1	2,605.9	2,610.6	5,133.8	3,667.6	3,057.6	3,206.4	3,091.9	2,108.4	1,825.6	2,296.1	2,631.5	4,016.1	4,136.5
Japan	2,883.1	3,094.8	2,176.6	2,977.1	2,211.5	3,120.5	3,277.9	3,221.6	3,374.9	3,344.9	5,007.7	4,790.6	5,343.4	4,263.1	4,435.3	3,208.2	2,929.8	5,012.6	6,164.5
Germany	3,309.8	6,401.6	5,657.8	5,938.1	5,100.0	5,018.7	5,274.3	4,895.8	6,085.7	7,352.8	9,669.4	9,319.0	9,411.3	7,874.1	7,082.0	5,137.9	5,244.9	6,995.0	6,825.8
France	4,748.0	9,936.9	13,043.2	8,706.6	10,039.9	8,502.4	4,952.0	5,489.0	10,120.5	13,913.9	12,452.3	18,791.9	14,012.8	11,697.8	10,555.3	7,954.7	8,346.3	9,886.2	11,678.5
United Kingdom	8,511.8	5,793.3	3,863.1	4,780.4	5,201.0	5,615.6	4,392.2	3,699.0	5,767.4	6,357.6	7,423.0	5,891.9	5,530.8	5,412.8	5,710.5	4,937.9	5,926.2	8,872.1	8,736.2
Italy	1,691.9	2,405.4	1,747.3	1,920.5	2,241.3	2,038.6	1,759.2	1,545.7	1,881.3	1,978.4	2,604.3	2,771.4	2,400.8	1,834.8	2,027.9	1,829.2	1,920.9	1,860.0	2,820.2
China	244.1	21.3	52.5	293.2	153.2	813.5	608.4	597.9	332.2	599.1	603.0	791.9	219.2	3,297.9	3,897.5	2,326.2	3,193.3	4,660.4	5,488.1
South Korea	823.4	833.2	499.1	547.2	1,068.4	936.0	813.6	844.1	1,858.9	1,890.7	1,562.4	2,357.3	2,382.9	2,471.4	2,441.5	2,685.0	2,775.6	2,519.7	2,066.9
Taiwan	599.8	617.9	1,137.7	668.8	434.7	690.8	336.5	261.0	253.3	775.1	793.2	1,738.2	1,833.6	2,518.7	2,142.1	2,436.2	1,534.1	2,577.2	3,268.1
Singapore	1,518.2	875.4	792.1	1,324.8	1,417.2	1,603.5	931.0	862.0	747.6	1,837.2	1,380.8	1,853.4	1,825.5	2,194.5	1,938.0	1,910.8	3,110.1	3,346.0	2,833.5
Hong Kong	533.4	259.8	435.3	359.1	397.3	405.5	871.6	572.8	345.9	557.2	805.4	871.2	853.9	1,077.3	696.7	2,081.8	1,910.4	715.0	2,057.8
Argentina	403.2	615.7	196.3	131.1	9.1	12.9	67.2	69.4	75.3	126.1	148.7	62.9	346.4	318.5	388.4	263.5	233.4	370.3	427.3
Bolivia	30.6	62.3	8.1	9.3	3.4	15.0	11.8	4.9	1.8	14.0	2.5	3.9	40.3	88.7	9.5	125.0	135.0	86.3	82.7
Brazil	1,179.5	867.0	685.7	555.8	273.5	416.8	558.1	798.3	872.8	1,292.0	1,407.5	2,104.4	1,450.4	1,140.8	554.9	893.6	851.1	1,377.0	1,775.3
Chile	145.7	136.1	206.2	41.2	37.8	38.3	30.1	27.5	52.3	169.4	339.7	213.1	387.1	37.7	111.1	298.0	338.2	241.2	480.9
Colombia	129.6	178.9	110.2	113.7	55.3	28.9	28.6	81.0	65.2	70.8	204.7	76.8	440.8	321.7	589.1	224.9	248.1	432.0	457.9
Costa Rica	35.2	3.8	5.1	2.7	1.9	0.4	0.7	1.4	6.6	5.8	11.3	55.0	61.0	71.7	208.9	87.6	9.5	10.4	13.9
Ecuador	146.7	121.0	47.3	61.7	46.4	34.5	82.4	28.7	37.4	50.2	33.4	192.9	108.8	111.1	47.6	180.0	31.4	39.2	106.5
Honduras	27.5	16.1	5.5	4.9	12.9	2.3	3.6	0.8	1.5	27.6	90.2	5.5	2.0	2.7	2.3	2.8	4.5	3.9	4.1
Jamaica	4.4	7.9	5.1	172.2	3.3	3.1	10.8	5.4	48.2	12.1	93.5	24.3	16.6	22.6	14.6	32.0	58.3	140.0	6.1
Mexico	846.1	1,321.3	366.7	214.7	142.3	82.5	209.0	246.2	333.3	735.8	643.6	1,287.9	1,639.4	1,196.4	980.8	193.0	168.1	229.0	782.2
Panama	29.3	26.1	230.8	125.1	64.7	45.0	4.5	3.9	33.7	12.8	22.8	19.3	31.8	52.6	29.2	26.6	12.8	10.1	18.5
Peru	30.8	97.0	218.4	63.1	33.3	44.6	7.7	79.1	35.2	73.5	76.7	59.2	60.7	42.5	52.6	73.6	31.2	18.8	46.2
Uruguay	14.2	23.6	108.5	2.2	0.3	0.7	1.2	1.1	16.0	2.7	2.6	3.7	24.0	3.6	6.1	3.6	5.3	5.7	24.7
Venezuela</																			

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Apparent consumption																			
United States	100,295.7	96,878.5	102,772.3	104,723.6	118,698.4	124,340.4	130,634.1	133,992.0	133,890.6	122,983.8	125,870.3	123,307.6	117,354.7	102,300.8	87,850.7	88,945.7	99,333.6	102,090.7	98,405.3
Canada	4,088.2	4,075.5	2,089.6	2,332.3	3,018.8	3,505.8	3,420.0	4,059.9	6,531.2	5,399.1	4,807.3	4,067.1	4,605.0	3,664.2	3,676.9	5,042.6	5,291.1	7,095.2	6,211.1
Japan	7,942.4	8,544.3	7,728.1	9,072.3	8,636.4	10,486.6	9,204.5	10,005.5	10,186.4	9,765.6	11,642.5	11,009.5	11,782.8	10,502.0	9,848.5	8,955.1	8,973.3	11,114.2	12,152.2
Germany	8,621.8	7,092.4	3,576.6	6,448.9	4,522.6	6,195.3	8,999.0	8,711.3	7,813.2	6,146.7	9,669.2	600.8	908.6	7,063.6	6,744.0	6,077.3	7,119.5	6,042.9	4,525.1
France	18,754.3	20,109.0	21,923.3	20,303.6	22,066.7	20,928.3	19,271.5	19,661.9	23,790.7	26,268.1	27,692.8	29,685.1	25,376.5	21,039.0	19,566.8	16,125.3	19,405.5	19,292.1	21,972.2
United Kingdom	19,003.9	14,883.3	11,675.4	13,492.1	13,145.5	15,062.9	15,658.8	20,441.6	17,314.2	21,364.7	21,357.8	19,787.5	22,682.7	21,720.6	24,925.5	24,113.3	25,286.4	29,096.7	32,363.9
Italy	5,787.4	4,536.0	3,887.3	4,016.0	4,176.2	4,186.4	4,405.7	4,270.3	4,915.9	4,648.7	3,491.2	3,657.1	2,958.5	2,425.5	3,286.5	3,695.4	3,635.9	3,859.8	4,248.8
China	212.7	92.6	127.1	366.4	257.0	1,152.2	954.2	1,083.7	768.2	1,066.2	1,268.4	1,767.8	3,768.4	4,391.9	5,867.6	2,684.5	3,573.4	5,164.1	6,362.0
South Korea	599.5	718.0	616.4	675.9	1,229.3	935.8	716.1	1,349.8	2,335.1	2,085.7	1,949.3	2,632.3	2,512.8	2,419.8	2,665.7	2,639.8	4,097.8	5,052.4	4,588.7
Taiwan	3,692.6	3,652.7	3,986.7	3,879.0	3,882.8	4,372.5	5,251.7	6,684.8	7,010.1	8,160.0	8,156.1	9,335.0	9,901.0	10,343.9	10,008.0	10,426.2	9,156.7	10,843.8	12,360.8
Singapore	1,514.0	830.8	934.7	1,454.2	1,812.0	1,737.9	1,731.2	1,621.7	1,447.4	2,006.4	1,770.8	2,421.9	2,625.2	3,035.6	2,641.4	2,373.9	3,474.5	3,637.4	3,611.2
Hong Kong	663.7	469.9	703.6	792.2	784.9	801.7	1,510.5	1,150.7	827.5	1,017.4	1,323.7	1,383.0	1,319.2	1,460.4	1,011.8	2,528.0	2,257.6	975.9	2,309.6
Argentina	641.6	848.4	220.5	265.5	107.1	94.6	180.2	209.3	193.9	307.9	222.7	130.1	414.5	354.2	442.8	309.5	237.7	421.4	498.6
Bolivia	17.7	29.6	4.4	5.5	2.0	11.6	11.2	4.9	1.8	13.5	2.7	4.1	42.2	90.1	10.7	106.2	71.6	82.1	96.9
Brazil	1,018.9	622.8	347.5	570.0	227.3	500.2	185.4	248.5	402.1	362.6	680.9	2,166.4	1,437.3	1,028.4	428.9	853.8	621.5	1,123.5	1,402.7
Chile	111.6	102.2	123.2	31.8	17.8	47.6	44.3	40.9	83.7	204.9	356.5	259.2	455.3	82.9	147.1	320.3	367.1	277.0	510.2
Colombia	206.7	254.6	181.1	209.9	163.4	104.8	124.5	233.8	198.6	217.7	453.7	209.4	820.9	380.4	606.1	158.8	319.8	481.1	550.2
Costa Rica	29.2	12.7	12.6	11.1	10.6	8.8	10.4	13.0	19.2	23.6	26.3	72.2	83.9	86.5	231.9	108.2	27.7	22.3	27.2
Ecuador	94.4	84.5	45.0	72.2	49.2	36.5	96.5	34.4	67.3	64.9	44.9	256.4	150.0	127.4	51.1	179.2	31.8	39.2	107.5
Honduras	16.6	9.6	2.9	2.8	7.1	1.3	2.1	0.5	0.9	15.4	91.9	5.7	2.2	2.9	2.7	4.3	2.2	3.7	
Jamaica	6,237.5	1,482.4	1,450.4	127.7	8.8	11.9	3.5	3.8	55.8	33.8	106.8	28.8	31.7	32.7	6.2	23.7	50.4	132.1	5.6
Mexico	551.9	889.0	332.5	166.4	101.1	39.0	234.4	344.7	396.7	392.9	565.9	1,106.6	1,364.5	835.1	590.4	131.3	154.9	61.2	65.5
Panama	21.9	18.1	121.4	62.0	35.1	31.4	11.6	9.3	27.4	15.9	21.6	18.3	28.5	46.7	27.5	26.4	14.0	11.1	16.4
Peru	35.9	87.4	188.2	80.5	32.9	70.2	10.5	100.6	60.0	82.2	90.1	55.5	51.2	45.7	52.7	68.7	31.3	18.9	47.5
Uruguay	9.8	16.3	81.1	66.3	0.4	1.2	1.8	13.3	23.1	3.5	3.2	4.7	30.4	4.0	6.3	3.4	5.1	5.7	25.2
Venezuela	71.7	112.7	100.9	46.8	108.1	130.1	105.6	183.4	121.5	166.4	197.5	183.5	178.1	94.7	102.8	70.2	141.6	77.6	135.1
All countries ^a	195,760.0	186,229.7	183,833.9	188,441.9	202,242.3	213,535.8	225,075.0	238,133.7	246,925.5	244,154.4	251,084.5	244,167.6	235,374.8	218,134.2	202,095.7	199,016.7	220,735.6	237,305.6	246,312.4

Computers and office machinery

Production																			
United States	2,451.3	3,126.6	3,972.0	5,290.4	8,331.3	9,778.5	10,738.3	13,817.0	16,629.9	17,186.3	18,538.6	18,881.9	25,053.9	30,517.7	39,729.2	53,599.9	83,757.8	126,984.2	183,367.6
Canada	66.0	96.0	112.1	135.6	216.4	281.1	307.6	413.1	597.4	659.6	750.3	859.2	1,087.2	1,285.5	2,166.4	2,612.1	3,317.4	4,816.5	7,434.1
Japan	2,103.3	2,716.5	3,312.2	4,190.0	5,977.7	7,887.9	9,697.4	13,357.8	16,403.8	20,353.9	25,291.1	30,437.8	33,974.8	38,201.7	45,961.3	60,669.3	87,312.9	116,753.3	154,144.3
Germany	489.5	604.4	714.1	895.1	1,173.6	1,447.4	1,816.7	2,338.8	2,707.3	3,092.0	3,760.5	4,896.9	5,189.7	5,552.6	7,273.0	9,168.8	12,157.3	16,174.7	22,521.1
France	343.3	439.4	523.6	632.9	814.1	994.4	1,174.4	1,477.2	1,725.9	2,029.6	2,430.5	2,762.6	3,150.1	3,532.4	4,003.8	5,139.9	6,578.4	8,960.6	12,585.9
United Kingdom	231.6	246.6	323.5	497.6	861.0	1,301.0	1,453.3	2,186.7	3,052.6	3,646.9	4,143.5	4,495.6	5,493.6	6,307.6	7,931.8	10,764.7	15,287.1	21,048.2	32,326.4
Italy	175.4	207.8	224.2	373.2	534.2	417.7	497.3	630.8	1,245.4	1,451.3	1,680.2	1,557.6	2,076.1	2,467.3	3,171.8	3,939.9	5,354.2	7,131.4	9,855.9
China	68.2	82.8	115.4	165.3	242.3	323.0	401.0	571.9	723.3	826.8	840.5	1,068.2	1,592.4	2,190.2	2,517.0	2,672.3	3,842.1	5,162.1	7,529.1
South Korea	5.0	7.2	6.9	26.9	67.5	106.1	205.0	252.0	379.2	425.1	502.7	583.2	673.6	1,523.0	1,978.4	3,201.9	5,630.4	9,511.5	11,990.6
Taiwan	92.2	118.4	137.8	195.6	270.8	323.2	590.9	836.9	1,054.7	1,175.1	1,376.8	1,650.4	2,080.2	2,968.5	3,546.7	4,437.2	6,363.5	8,929.1	12,635.0
Singapore	22.3	41.6	44.4	60.7	84.3	105.8	124.4	202.1	268.1	1,835.1	2,468.5	2,750.1	3,730.2	6,251.6	8,653.8	12,672.8	19,479.2	26,912.2	36,899.6
Hong Kong	15.4	24.9	29.0	85.2	150.4	104.8	138.7	216.0	395.4	543.9	1,032.7	1,194.3	1,252.5	1,248.8	1,186.9	2,028.5	2,418.0	2,988.7	3,918.7
Argentina	19.8	16.3	15.7	20.9	26.7	26.3	35.4	41.6	43.9	47.0	42.6	63.4	94.2	115.2	141.0	166.5	235.0	332.4	468.0
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Brazil	289.6	349.0	420.8	494.4	672.9	888.0	1,760.1	3,382.5	5,000.6	6,715.5	1,469.2	2,507.8	1,738.5	2,099.0	2,301.9	2,236.4	3,099.3	4,178.5	5,641.9
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Colombia	1.0	1.2	1.8	1.8	1.5	1.0	1.0	1.5	1.8	1.6	1.6	2.1	3.2	3.9	4.3	5.2	6.4	5.6	6.3
Costa Rica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ecuador	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Jamaica	0.0	0.1	0.1	0.1	0.1	0.1													

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
Exports																				
United States	11,327.3	12,244.7	12,563.3	14,155.0	17,852.5	18,805.3	19,871.2	22,943.1	27,460.1	27,801.8	29,742.3	31,210.2	32,889.3	32,805.6	37,360.9	44,626.9	48,792.3	54,238.3	49,939.6	
Canada	1,088.9	1,268.2	1,308.1	1,463.8	1,870.0	1,857.1	1,870.0	2,373.4	2,993.1	2,721.4	3,008.8	3,543.6	3,948.4	4,108.2	5,399.7	6,653.7	5,581.2	5,338.0	5,572.1	
Japan	3,694.7	4,168.3	5,383.3	8,219.0	12,163.8	12,557.2	15,586.3	17,532.4	21,161.6	22,963.0	24,999.4	25,821.3	28,154.2	28,807.8	28,614.3	29,787.0	31,172.3	35,062.9	32,498.3	
Germany	3,860.0	4,563.4	4,763.1	5,432.4	6,435.9	7,989.1	9,178.3	8,761.3	8,974.5	9,780.4	9,318.2	9,539.3	8,649.4	8,791.5	9,820.9	10,725.8	10,604.9	11,637.1	13,162.4	
France	2,143.8	2,482.3	2,400.3	2,903.3	3,506.2	3,829.8	4,669.3	5,345.9	5,498.7	5,842.0	5,500.5	6,123.0	6,316.5	6,456.6	6,981.0	8,099.7	8,712.0	10,060.6	10,338.3	
United Kingdom	3,513.2	3,229.5	3,721.8	4,536.8	6,699.5	7,765.0	7,593.5	9,195.1	11,524.8	12,256.2	11,970.9	12,386.3	12,004.8	14,737.8	16,296.4	19,775.2	19,268.6	21,153.3	20,824.1	
Italy	2,282.0	1,773.4	1,936.4	2,018.8	2,376.1	3,405.6	3,470.4	3,375.0	4,193.3	4,793.2	4,273.2	4,309.8	3,966.2	5,055.0	5,114.9	5,553.7	4,395.6	3,782.5	3,464.9	
China	9.6	5.8	7.6	17.6	30.0	15.8	72.2	107.8	292.2	218.4	422.5	660.7	1,367.9	1,945.8	3,125.5	4,795.6	6,509.4	8,865.8	10,925.0	
South Korea	112.4	115.7	154.0	297.7	542.6	746.2	1,192.9	1,734.9	2,504.6	2,513.8	2,397.1	2,609.2	2,826.6	3,173.1	3,182.1	4,230.0	5,144.5	6,396.5	5,270.3	
Taiwan	343.0	429.7	499.6	843.8	1,607.6	1,970.7	3,286.0	5,204.6	6,284.1	7,439.0	8,997.3	10,824.1	12,874.3	14,244.8	16,376.4	20,308.7	23,106.1	24,629.4	27,872.8	
Singapore	208.4	219.0	373.8	956.7	1,705.2	1,965.3	3,226.1	4,758.7	7,371.2	8,796.8	10,831.7	11,654.1	14,169.6	17,847.8	22,889.4	28,482.4	31,896.1	34,433.9	31,965.4	
Hong Kong	426.2	499.8	429.8	753.8	1,239.2	1,018.9	938.1	1,251.5	1,788.0	1,901.0	2,163.1	2,356.4	2,565.8	2,102.3	1,960.9	1,919.8	1,268.8	950.5	949.9	
Argentina	89.8	143.3	140.3	106.4	118.9	155.4	137.1	97.6	136.6	151.2	157.2	173.9	137.0	96.0	97.6	77.8	46.5	31.0	38.4	
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.6	
Brazil	356.4	420.2	360.2	246.7	313.1	293.9	302.8	219.6	343.8	326.4	201.6	319.5	318.3	273.3	229.0	292.6	383.4	350.0	355.9	
Chile	0.7	0.2	1.1	2.0	0.6	0.6	0.7	0.9	0.6	1.4	1.0	1.9	4.8	4.9	5.1	7.5	9.7	10.8	15.2	
Colombia	3.9	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	1.3	1.5	5.4	4.3	11.7	2.5	1.0	3.0	
Costa Rica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	0.7	612.8	
Ecuador	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.1	0.0	0.0	
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	2.0	2.1	0.5	
Jamaica	0.0	0.0	0.0	0.0	0.2	0.1	0.5	0.5	0.3	0.9	1.0	0.7	0.5	4.1	0.2	0.2	0.2	0.3	0.9	
Mexico	36.4	37.7	37.7	223.2	317.4	385.5	46.9	326.4	517.7	739.1	586.1	736.2	1,072.5	1,304.5	2,166.9	2,963.5	4,227.7	6,136.0	8,803.4	
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.9	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	
Peru	0.1	0.1	0.1	0.0	0.0	0.1	1.1	0.6	0.0	0.3	1.0	0.0	0.3	0.4	0.5	0.2	0.9	1.9	2.2	3.4
Uruguay	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.4	
Venezuela	0.4	0.9	1.1	0.1	0.0	0.1	0.1	0.0	0.9	1.8	1.4	2.0	2.9	1.9	3.6	1.4	1.6	0.9	0.2	
All countries ^a	33,518.9	36,531.4	39,636.6	49,283.0	66,329.4	73,996.8	84,114.5	97,565.9	116,736.8	127,326.0	135,254.6	145,266.5	156,082.3	172,444.0	196,127.5	233,414.2	254,402.9	288,474.2	301,635.9	
Import penetration (percent)																				
United States	215.6	209.2	198.9	229.4	214.2	194.5	189.2	169.5	167.6	176.4	169.9	176.1	144.3	126.8	109.7	91.6	63.8	48.8	35.0	
Canada	1,773.0	1,438.0	1,248.2	1,131.4	893.0	699.6	600.1	537.3	494.7	448.0	422.1	398.3	327.2	270.5	219.4	210.4	146.6	104.7	71.5	
Japan	68.3	56.6	49.7	45.0	40.9	36.9	34.5	29.4	31.6	30.3	27.3	24.5	23.7	25.0	25.4	29.5	23.5	17.8	12.0	
Germany	869.7	722.1	629.0	591.9	517.6	508.2	462.4	383.3	343.7	317.0	287.8	238.6	217.8	195.2	168.3	153.9	112.7	84.9	66.8	
France	926.0	758.9	656.9	605.3	521.2	476.2	456.9	408.8	367.8	321.7	279.6	252.1	229.3	200.7	190.9	173.8	139.5	107.8	81.1	
United Kingdom	1,597.2	1,398.7	1,157.9	887.4	698.5	560.0	454.4	379.3	347.2	314.2	286.0	269.9	217.4	212.9	188.5	165.1	117.1	100.5	65.7	
Italy	1,319.7	964.0	917.7	590.2	516.5	809.4	663.0	530.5	358.5	336.7	289.9	309.7	225.1	200.6	154.7	134.9	96.7	67.4	48.9	
China	253.0	212.2	184.2	154.7	353.7	296.8	175.8	159.4	128.2	101.9	99.7	103.9	101.2	100.2	108.5	165.5	178.5	215.1	217.8	
South Korea	2,114.9	1,548.0	1,490.2	1,075.6	962.6	872.4	661.4	3,152.1	3,985.5	2,564.0	895.7	791.7	1,385.6	229.2	166.2	135.0	82.4	53.5	36.2	
Taiwan	225.7	217.0	225.2	222.2	313.9	396.4	383.0	1,285.2	983.8	18,119.4	13,981.2	10,911.6	7,991.1	7,526.3	7,268.5	6,975.6	8,016.4	9,589.9	10,043.9	
Singapore	1,065.2	679.3	939.9	1,880.8	1,201.4	781.2	574.0	615.1	776.7	757.0	794.7	844.0	1,122.6	443.1	487.1	400.1	284.1	208.9	162.7	
Hong Kong	2,182.4	1,673.1	1,289.8	809.7	818.1	938.1	668.9	516.2	393.4	334.2	211.8	210.1	215.4	188.1	182.3	132.6	102.4	85.7	66.5	
Argentina	911.7	985.0	906.3	591.6	517.5	549.4	396.6	262.4	287.8	254.5	287.0	268.2	219.0	192.0	175.9	138.1	103.4	79.4	59.4	
Bolivia	2,777.4	2,925.6	2,103.1	1,745.8	1,419.2	964.3	648.1	524.0	463.4	415.8	355.5	330.6	186.8	230.2	190.5	161.4	128.2	100.2	93.8	
Brazil	114.0	96.4	70.3	47.4	38.1	50.3	23.2	13.5	10.0	8.1	34.6	22.8	42.5	42.3	46.2	57.9	51.6	42.3	30.2	
Chile	3,005.4	2,585.5	1,854.2	1,275.5	935.8	613.3	496.6	414.0	389.6	358.4	325.9	294.4	257.5	212.1	193.0	178.7	131.0	101.7	71.6	
Colombia	1,611.0	1,382.4	1,203.9	957.7	818.4	606.6	477.1	369.1	332.5	290.6	249.1	220.1	200.6	181.5	183.1	162.6	122.2	99.2	69.6	
Costa Rica	2,826.0	1,178.7	1,098.7	1,083.8	861.1	718.4	537.9	431.6	377.7	361.1	331.8	277.9	219.5	191.5	171.5	132.6	101.7	126.2		
Ecuador	2,763.2	2,128.4	1,196.8	824.0	793.7	708.2	524.5	434.1	256.0	310.5	281.2	258.9	221.2	204.5	192.2	163.9	124.1	100.5	76.9	
Honduras	2,665.5	2,324.9	2,128.8	1,846.1	1,536.3	1,277.8	1,040.2	804.3	732.7	718.3	370.7	337.7	280.7	218.1	196.9	159.9	145.2	112.9	86.5	
Jamaica	1,398.1	1,307.4	1,175.5	1,058.2	613.4	462.0	448.2	367.4	356.9	358.3	311.4	229.7	153.5	292.0	129.9	123.3	104.3	94.7	82.6	
Mexico	1,347.3	1,210.8	744.7	1,040.7	544.9	484.5	248.8	295.3	275.1	298.3	263.4	283.8	340.3	281.1	215.1	162.7	169.4	145.8	164.0	
Panama	2,776.4	2,310.5	1,890.9	1,565.5	1,322.0	983.3	757.0	581.8	598.9	448.4	407.0	341.4	290.6	236.9	206.4	169.8	128.4	100.0	74.7	

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Imports																			
United States	4,302.1	5,338.3	6,644.3	10,668.0	16,116.1	17,195.7	19,019.0	22,401.4	26,598.8	29,882.3	30,934.2	33,248.9	38,460.5	44,803.7	50,718.0	56,680.0	60,291.8	69,237.1	73,880.3
Canada	1,794.9	2,285.4	2,345.2	2,647.5	3,827.9	3,752.2	3,762.5	4,586.0	5,103.3	5,314.1	6,060.4	6,903.5	7,400.2	7,722.2	8,587.5	9,739.5	10,584.6	11,542.1	11,448.2
Japan	1,344.3	1,428.5	1,481.8	1,572.2	1,893.5	2,286.3	2,585.2	3,042.1	4,017.3	4,835.6	5,459.9	5,981.8	6,213.4	7,374.8	9,404.4	15,418.0	18,147.8	17,644.8	15,711.2
Germany	4,469.9	4,615.6	4,607.1	5,670.7	6,973.1	8,253.1	9,121.6	10,480.3	11,752.6	13,423.2	15,225.8	17,071.9	17,285.3	17,369.1	19,150.9	22,277.8	22,550.5	25,426.7	27,448.7
France	3,665.5	3,873.7	4,334.6	4,949.9	5,669.2	6,414.5	7,120.6	7,744.9	9,115.4	9,155.8	9,006.3	8,888.6	9,248.1	9,953.5	11,455.4	12,942.0	13,242.8	15,189.6	15,919.4
United Kingdom	4,114.7	4,446.3	4,975.8	6,206.4	7,861.0	8,190.2	8,231.6	10,006.5	12,269.9	13,721.2	13,724.7	13,624.4	14,138.2	15,877.0	16,329.7	18,671.4	19,409.2	22,550.1	24,799.1
Italy	2,200.5	2,349.2	2,186.7	2,345.8	3,312.0	3,932.2	4,094.1	4,946.1	5,703.3	5,402.3	5,584.1	5,897.6	5,851.7	5,445.5	5,461.5	6,294.9	6,953.9	6,935.1	7,290.7
China	180.8	185.1	225.5	272.5	1,101.7	1,306.0	891.5	1,211.2	1,115.5	991.4	987.9	1,351.7	1,846.2	2,523.7	3,092.5	4,327.6	5,148.0	6,584.4	7,967.1
South Korea	217.3	223.2	325.7	502.9	522.5	709.9	1,055.5	1,026.0	1,481.5	1,627.5	1,869.4	1,978.2	1,696.2	1,913.4	2,515.5	3,313.1	3,835.7	3,589.0	1,903.2
Taiwan	194.9	238.5	285.1	357.3	503.5	547.3	808.9	1,079.4	1,537.1	1,751.7	1,949.9	2,165.3	2,418.2	2,422.9	2,785.9	3,478.8	4,534.0	5,310.2	5,078.0
Singapore	291.3	344.6	506.2	789.1	1,009.3	1,126.6	1,245.8	1,931.9	2,864.3	3,296.4	4,545.8	5,045.9	5,747.5	7,306.8	8,932.7	10,746.7	13,160.7	14,426.4	13,565.8
Hong Kong	654.9	590.8	571.4	655.1	1,255.7	1,145.8	977.4	1,357.9	1,960.8	2,032.6	2,389.3	3,135.6	4,349.3	4,646.1	6,000.6	8,049.2	9,623.0	12,180.0	12,319.1
Argentina	382.7	278.3	149.5	174.5	197.9	243.2	164.3	183.7	174.0	173.1	204.4	428.4	587.4	785.6	1,052.9	794.7	977.8	1,159.7	1,333.2
Bolivia	3.5	4.4	1.7	1.2	1.4	2.1	2.5	3.5	3.0	2.4	3.0	4.6	4.2	7.9	5.3	5.6	9.1	18.9	9.7
Brazil	323.8	326.7	288.2	231.2	247.6	462.4	414.5	467.2	506.5	547.6	548.2	601.2	870.1	1,100.2	1,389.2	1,847.4	2,404.7	2,812.3	2,667.1
Chile	78.9	119.3	60.1	50.5	71.1	90.3	94.7	104.8	144.3	152.2	148.5	194.9	262.9	302.3	340.2	459.1	517.6	663.3	599.1
Colombia	55.7	64.2	92.0	79.5	73.3	67.5	99.6	126.7	128.6	124.8	137.8	174.7	202.3	306.1	405.5	452.5	474.9	542.8	544.0
Costa Rica	9.2	7.0	4.1	4.8	8.9	17.1	11.3	15.2	15.4	18.4	24.6	19.5	26.4	33.7	24.5	25.0	31.1	38.6	52.2
Ecuador	11.0	11.8	14.2	8.7	10.1	11.0	14.2	13.6	17.8	9.3	8.1	14.4	17.7	19.2	22.3	20.2	15.8	23.3	22.3
Honduras	5.9	6.5	3.7	3.9	5.7	7.8	6.2	5.7	2.9	2.3	2.7	3.6	5.9	6.3	9.2	8.6	11.0	18.4	21.5
Jamaica	2.4	3.6	3.9	5.6	6.9	6.5	7.3	5.3	8.4	14.7	15.3	13.8	8.4	6.9	15.3	16.4	17.8	18.7	25.1
Mexico	436.1	454.0	280.0	253.2	400.2	673.4	468.5	644.4	902.1	910.5	1,168.1	1,539.7	1,762.5	2,204.3	2,769.2	2,450.7	3,299.6	4,346.8	4,269.1
Panama	56.5	44.3	21.2	19.5	22.9	16.7	16.9	18.0	31.2	29.8	27.5	34.5	41.3	53.6	59.8	34.8	58.4	60.3	75.3
Peru	35.8	52.0	61.2	36.3	44.9	55.9	63.3	66.4	51.3	46.0	44.7	66.6	67.9	89.0	137.7	204.7	262.7	313.1	316.6
Uruguay	13.8	11.0	5.9	3.1	3.6	4.5	6.4	6.1	9.6	10.0	10.1	15.0	12.8	16.0	14.3	21.1	39.0	73.2	72.8
Venezuela	165.3	187.4	276.1	125.6	205.4	347.5	251.8	259.3	519.9	253.3	194.2	307.2	293.2	333.9	203.1	328.2	357.4	436.4	438.1
All countries ^a	35,333.5	38,788.1	42,152.8	52,799.7	71,250.5	79,477.0	84,557.6	98,245.5	117,673.6	128,287.6	136,092.4	146,790.4	157,548.5	174,720.7	199,250.2	238,748.0	262,662.7	299,201.3	311,254.6
Apparent consumption																			
United States	1,995.4	2,551.2	3,340.2	4,649.5	7,523.3	8,838.8	10,053.2	13,217.3	15,868.5	16,942.0	18,206.9	18,876.3	26,662.3	35,331.5	46,245.0	61,847.6	94,464.7	141,983.0	210,882.5
Canada	101.2	158.9	187.9	234.0	428.7	536.4	627.0	853.5	1,031.5	1,186.1	1,435.6	1,733.3	2,261.4	2,854.9	3,913.6	4,628.3	7,221.7	11,020.6	16,010.1
Japan	1,967.6	2,526.0	2,982.5	3,491.8	4,627.9	6,201.4	7,465.1	10,344.6	12,704.7	15,978.5	19,976.2	24,453.5	26,163.4	29,444.2	37,006.7	52,320.3	77,283.5	99,335.2	131,052.0
Germany	513.9	639.2	732.5	958.1	1,347.3	1,623.8	1,972.6	2,734.4	3,419.3	4,233.8	5,290.1	7,154.2	7,937.3	8,898.2	11,376.1	14,475.3	20,012.0	29,964.3	41,079.5
France	395.9	510.4	659.9	817.8	1,087.6	1,347.1	1,558.3	1,894.5	2,478.5	2,846.1	3,221.6	3,526.1	4,032.9	4,960.6	6,001.1	7,445.4	9,490.9	14,089.6	19,629.6
United Kingdom	257.6	317.9	429.7	699.4	1,125.4	1,462.6	1,811.7	2,638.0	3,533.7	4,367.4	4,798.2	5,047.3	6,504.4	7,459.0	8,664.5	11,311.1	16,571.6	22,445.0	37,763.5
Italy	166.7	243.7	238.3	397.4	641.3	485.8	617.6	932.3	1,590.9	1,604.2	1,926.0	1,904.2	2,599.0	2,714.7	3,530.4	4,665.9	7,190.5	10,284.0	14,894.9
China	71.5	87.2	122.4	176.2	311.5	440.0	507.1	756.9	870.2	972.6	990.5	1,300.4	1,824.7	2,517.7	2,850.8	2,615.6	2,884.2	3,060.6	2,931.5
South Korea	10.3	14.4	21.9	46.8	54.3	81.4	159.6	32.5	37.2	63.5	208.7	249.9	122.4	834.8	1,513.3	2,454.1	4,653.2	6,704.0	5,250.7
Taiwan	86.3	109.9	126.6	160.8	180.4	138.1	211.2	84.0	156.2	9.7	13.9	19.8	30.3	32.2	38.3	49.9	56.6	55.4	50.6
Singapore	27.3	50.7	53.9	42.0	84.0	144.2	217.0	314.1	368.8	435.5	572.1	597.9	512.0	1,648.9	1,833.7	2,686.0	4,633.0	6,904.7	8,339.5
Hong Kong	30.0	35.3	44.3	80.9	153.5	122.1	146.1	263.1	498.4	608.1	1,125.4	1,492.8	2,019.1	2,470.2	3,292.2	6,069.9	9,394.8	14,218.3	18,533.3
Argentina	42.0	28.3	16.5	29.5	38.3	44.3	41.4	70.0	60.5	68.0	71.2	159.8	268.2	409.1	598.7	575.5	946.1	1,461.1	2,245.4
Bolivia	0.1	0.1	0.1	0.1	0.2	0.4	0.6	0.6	0.7	0.4	0.3	0.7	1.1	2.1	2.9	4.7	5.4	7.6	18.8
Brazil	284.1	338.8	410.2	487.2	649.5	918.6	1,784.6	3,467.9	5,070.2	6,795.2	1,585.2	2,638.9	2,046.9	2,603.7	3,007.0	3,193.4	4,663.8	6,640.8	8,835.1
Chile	2.6	4.6	3.2	4.0	7.6	14.7	19.1	25.3	37.0	42.5	45.6	66.2	102.1	142.5	176.2	257.0	395.1	652.5	837.0
Colombia	3.5	4.6	7.6	8.3	9.0	11.1	20.9	34.3	38.7	43.0	55.3	79.4	100.8	168.7	221.5	278.3	388.6	547.3	781.3
Costa Rica	0.3	0.6	0.4	0.4	1.0	2.4	2.1	3.5	4.1	5.1	7.4	7.0	10.4	15.3	12.5	14.6	23.4	38.0	41.3
Ecuador	0.4	0.6	1.2	1.1	1.3	1.6	2.7	3.1	6.9	3.0	2.9	5.5	8.0	9.4	11.6	12.3	12.7	23.2	29.1
Honduras	0.2	0.3	0.2	0.2	0.4	0.6	0.6	0.7	0.4	0.3	0.7	1.1	2.1	2.9	4.7	5.4	7.6	16.3	24.9
Jamaica	0.2	0.3	0.3	0.5	1.1	1.4	1.6	1.4	2.3	4.1	4.9	6.0	5.5	2.4	11.7	13.3	17.1	19.7	30.4
Mexico	32.4	37.5	37.6	24.3	73.4	139.0	188.3	218.3	328.0	305.2	443.4	542.5	517.9	784.1	1,287.2	1,5			

World industry and trade data for selected countries or economies and industries: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Communications equipment																			
Production																			
United States	104,920.8	107,540.9	115,713.4	121,483.7	140,365.9	141,792.8	141,353.0	106,106.9	114,421.0	115,535.1	119,544.3	122,547.5	137,000.7	145,252.5	160,090.6	196,130.0	230,783.2	294,833.3	350,029.3
Canada	3,691.3	3,691.2	3,683.7	3,711.8	4,314.8	4,708.7	4,953.2	5,700.3	6,067.6	6,496.5	6,332.4	7,593.5	8,583.4	8,289.5	8,942.1	9,885.8	10,515.0	12,377.1	14,107.8
Japan	104,513.3	118,978.8	124,551.2	137,373.9	164,060.6	168,751.3	167,698.8	166,267.7	190,450.8	200,786.8	210,965.4	225,901.2	200,197.5	191,544.9	170,466.8	188,812.3	202,016.7	220,569.4	225,525.7
Germany	32,107.0	32,665.5	33,039.7	33,847.5	34,098.1	35,583.9	37,703.9	39,036.0	40,960.6	42,562.4	46,308.8	53,478.5	52,666.1	50,285.8	51,030.1	54,075.4	55,165.2	58,039.7	61,064.2
France	14,356.2	14,639.2	15,141.6	15,114.1	15,581.0	16,319.2	17,036.7	17,529.0	18,843.4	19,899.4	21,014.5	21,957.9	22,073.7	21,269.8	22,128.5	23,610.0	24,229.9	26,091.5	27,692.0
United Kingdom	18,004.9	17,113.7	17,995.6	19,446.5	22,282.6	22,770.0	22,997.3	23,659.0	25,183.7	25,253.3	24,856.3	22,517.0	22,295.5	17,800.7	20,506.0	22,534.2	25,024.2	27,942.1	30,261.3
Italy	6,523.7	6,121.2	6,345.1	6,967.8	6,420.0	6,442.9	7,263.2	7,982.7	8,063.6	8,753.5	8,723.0	8,677.0	8,278.1	7,441.6	7,952.4	8,303.3	8,681.6	9,144.0	9,549.2
China	1,554.8	1,554.7	1,624.1	2,138.8	3,068.9	6,820.5	7,373.6	8,812.2	11,369.5	12,820.0	11,855.5	13,649.3	16,531.1	21,323.6	24,353.0	26,123.9	30,422.7	36,845.6	40,608.2
South Korea	5,358.0	6,429.4	6,455.6	8,531.2	11,168.5	11,326.8	16,180.1	21,673.2	24,950.3	25,270.2	27,700.1	27,563.8	28,262.9	31,734.8	37,787.8	50,283.7	50,371.1	48,502.4	46,202.4
Taiwan	5,697.4	5,934.9	5,937.3	7,382.0	9,314.7	9,777.6	13,908.8	16,175.0	18,993.1	19,615.4	19,603.0	20,841.0	21,372.5	26,092.4	28,381.6	34,425.8	38,514.2	42,735.7	45,694.8
Singapore	4,468.5	4,651.9	4,201.3	5,364.0	7,272.9	7,142.1	9,089.2	13,219.5	16,365.7	10,154.1	10,828.9	10,915.8	11,748.0	12,195.6	14,793.2	16,601.7	15,288.4	15,114.5	15,659.4
Hong Kong	4,420.8	5,718.1	5,258.5	6,073.1	5,950.2	4,486.2	6,163.6	8,061.6	8,226.1	6,366.0	4,475.9	3,079.3	3,501.4	3,291.4	3,215.2	3,218.7	3,212.4	3,182.7	3,182.7
Argentina	1,526.9	1,156.6	906.8	937.5	1,054.3	995.5	1,391.1	1,397.9	1,165.9	929.8	1,073.7	1,229.2	1,348.0	1,213.2	1,297.2	1,288.2	1,398.9	1,564.4	1,664.4
Bolivia	1.4	1.4	1.3	1.1	1.0	1.0	0.5	0.8	1.9	1.7	1.9	2.1	1.2	1.8	2.3	2.6	2.2	2.3	2.4
Brazil	7,430.2	7,376.0	7,642.8	7,311.5	7,645.6	8,537.6	13,813.3	20,049.3	25,242.1	29,181.9	8,306.3	12,933.3	8,175.6	9,479.9	8,081.3	7,360.4	7,848.3	8,367.3	8,536.8
Chile	42.4	36.5	17.4	17.7	24.6	27.4	34.3	42.0	52.4	68.7	21.9	23.4	29.2	28.1	27.5	44.9	54.0	39.1	39.8
Colombia	124.5	125.2	118.1	112.8	125.8	128.7	113.0	149.6	181.7	193.0	184.2	158.8	154.7	162.9	148.7	162.1	125.5	164.6	150.5
Costa Rica	44.1	62.9	67.0	50.2	53.0	70.5	85.6	104.7	82.9	92.1	110.1	136.0	192.1	250.9	261.5	234.2	243.0	300.9	332.3
Ecuador	33.3	30.8	34.4	27.1	23.9	26.1	36.8	26.3	24.7	23.1	31.3	31.2	26.5	18.2	21.6	23.5	13.3	11.4	11.5
Honduras	6.1	6.4	7.1	6.1	6.2	7.0	6.6	7.0	5.4	4.7	4.8	3.8	1.9	1.9	2.0	2.2	2.3	2.6	2.6
Jamaica	1.6	1.6	1.7	1.8	1.7	1.6	1.5	1.7	1.9	2.3	2.0	2.2	2.5	2.6	2.7	2.8	2.8	2.8	2.8
Mexico	1,681.3	1,766.0	1,559.8	1,387.0	1,788.6	1,869.0	1,770.2	1,835.3	2,588.7	2,510.6	2,623.4	2,129.8	2,611.7	2,522.3	2,874.0	2,727.5	3,238.3	4,449.5	5,132.2
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peru	293.1	203.7	242.2	121.3	102.9	159.5	270.2	483.4	236.6	166.3	107.2	95.7	152.5	78.0	22.7	25.1	26.3	29.2	29.8
Uruguay	36.6	44.7	34.7	10.2	31.8	16.4	24.2	43.2	45.6	55.4	47.9	45.2	35.4	28.5	23.0	29.1	35.7	38.0	38.0
Venezuela	169.7	190.2	176.2	140.0	119.1	147.5	200.0	233.1	336.4	195.1	143.9	149.8	153.4	144.3	46.5	28.4	33.6	38.2	39.7
All countries ^a	352,750.2	373,251.6	390,077.4	420,013.9	478,375.5	495,530.5	520,547.0	512,845.0	572,397.9	593,135.9	597,557.2	634,162.3	624,768.6	629,934.2	650,754.3	748,884.6	819,441.6	937,424.5	1,018,829.3
Exports																			
United States	8,064.7	8,108.0	8,001.1	10,799.6	12,169.9	11,220.7	12,547.2	14,493.6	18,663.5	21,287.4	24,871.9	26,889.5	30,571.1	35,126.4	44,964.4	59,072.9	63,834.9	73,605.5	74,498.6
Canada	1,279.3	1,610.3	1,586.6	1,772.9	2,604.3	2,621.5	2,380.8	2,465.8	2,379.0	2,829.9	3,111.9	3,572.0	4,391.5	4,363.2	5,118.8	6,162.1	7,656.1	8,748.9	9,090.6
Japan	21,552.2	26,828.9	26,625.0	30,132.9	39,006.3	38,669.1	36,156.6	34,800.3	40,308.2	43,452.7	45,121.6	47,118.2	47,242.2	46,943.9	50,518.4	58,364.4	56,815.2	59,367.0	56,680.1
Germany	7,989.5	8,617.6	8,779.0	8,657.5	9,964.1	10,478.7	10,446.1	10,932.5	12,682.1	13,552.7	13,036.5	13,773.0	13,664.2	13,975.2	17,629.3	18,755.3	19,590.5	22,534.7	23,138.7
France	3,123.5	3,230.3	3,301.4	3,664.7	4,080.6	4,539.7	4,172.3	4,883.3	5,589.3	5,841.9	6,579.1	7,194.8	7,148.0	8,422.8	9,586.2	11,905.9	12,659.6	15,925.6	18,858.5
United Kingdom	3,207.4	3,329.2	3,569.9	3,669.5	4,324.3	4,791.4	5,074.5	5,472.2	7,274.0	8,012.4	8,799.4	9,396.2	10,114.4	13,711.6	16,732.8	21,739.4	22,632.0	21,115.6	23,176.7
Italy	1,776.8	1,864.2	2,037.9	2,113.7	2,537.4	2,700.7	2,622.1	2,764.0	3,288.5	3,355.0	3,384.9	3,488.5	3,669.3	4,496.0	5,053.1	5,859.2	5,588.5	5,978.8	6,215.4
China	64.0	91.1	110.4	176.2	446.2	135.4	369.3	649.9	1,899.3	1,568.9	3,364.0	3,964.9	5,187.8	6,035.3	9,324.3	10,641.8	11,141.7	12,674.0	13,523.6
South Korea	1,742.0	1,860.9	1,920.8	2,610.1	3,322.7	3,353.0	4,892.8	6,993.6	8,653.0	8,676.2	8,901.4	10,678.0	13,534.1	14,227.7	16,669.6	22,869.7	23,101.4	27,684.8	26,611.0
Taiwan	4,007.2	4,222.1	3,822.7	4,447.0	5,067.4	3,979.4	4,989.4	6,524.1	7,363.4	7,221.0	6,951.1	7,220.3	7,835.8	9,523.7	11,562.2	14,852.2	15,529.1	18,017.5	20,153.1
Singapore	3,090.9	2,738.1	2,634.3	2,933.8	3,740.0	3,433.4	4,565.8	6,437.8	9,184.6	10,019.0	10,729.9	11,819.3	12,913.1	15,652.2	22,839.6	28,915.7	28,970.1	30,604.2	28,582.5
Hong Kong	2,209.0	2,528.9	2,318.4	2,879.1	3,895.7	3,678.1	3,938.1	5,691.2	8,596.2	9,306.1	10,470.8	11,084.5	12,681.6	16,053.7	19,951.1	24,829.1	23,967.1	25,388.6	22,718.5
Argentina	12.1	8.7	5.5	7.2	10.9	7.9	13.9	11.6	8.6	4.4	7.5	10.9	14.4	15.2	57.0	101.3	64.5	87.2	67.5
Bolivia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.4	0.1	2.4	0.3
Brazil	233.4	309.2	243.2	227.5	397.3	336.3	504.3	578.8	594.1	609.8	571.1	496.3	516.0	512.5	540.5	517.3	604.8	693.7	696.1
Chile	4.1	3.3	1.3	0.3	0.7	0.2	0.3	0.7	0.7	0.6	0.8	1.5	1.8	4.5	4.2	4.9	4.7	5.2	8.1
Colombia	0.3	0.9	1.2	1.6	1.9	1.7	2.7	2.6	3.2	2.7	2.3	5.7	4.5	13.2	11.0	30.2	4.0	2.6	3.1
Costa Rica	0.8	0.7	0.8	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.1	0.2	0.9	1.2	0.4	1.5	3.6	159.7	673.1
Ecuador	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.1	0.5	0.5	0.3	2.1	0.3
Honduras	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Jamaica	0.9	0.6	0.6	0.6	1.0	1.0	1.7	1.9	4.7	9.8	4.4	0.5	6.1	1.4	0.8	1.6	1.2	0.5	0.8
Mexico	23.9	17.9	9.1	1,069.0	1,335.0	1,289.7	10.6	26.4	71.5	131.6	112.2	183.3	4,566.5	5,042.3	7,192.8	9,463.2	10,638.9	12,765.0	17,571.2
Panama	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	112.2	0.0	2.4	3.5	8.8	0.0	0.0	0.0	0.0	0.0	0.0
Peru	0.2	1.8	0.3	0.0	0.0	1.3	1.0	0.2	0.4	0.1	1.5	0.6	0.1	0.2	0.5	0.6	1.6	1.3	2.3
Uruguay	3.1	1.6	0.5	0.3	0.4	0.5	0.3	0.4	0.3	0.3	0.7	0.3	0.2	0.1	0.3	1.1	0.6	0.5	1.7
Venezuela	1.2	1.5	0.7	0.3	0.3	1.3	0.7	0.4	3.2	13.2	20.5	3.3	3.2	2.9	3.8	2.0	4.2	4.1	2.8
All countries ^a	71,																		

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Import penetration (percent)																			
United States	12.3	14.7	14.4	18.5	22.3	21.1	19.9	25.8	26.3	29.2	27.8	28.1	29.4	31.1	34.0	33.9	29.7	26.0	25.4
Canada	46.3	52.9	51.7	60.8	69.8	61.0	56.1	52.5	55.3	59.8	67.7	64.7	62.3	63.7	68.3	73.4	80.0	78.0	69.6
Japan	1.9	1.7	1.6	1.8	1.9	1.7	2.1	2.6	3.1	3.8	4.3	4.0	4.8	6.6	10.5	13.9	13.7	12.9	11.4
Germany	21.9	20.9	20.2	21.0	22.5	22.2	23.2	25.6	27.3	28.3	31.4	29.2	29.0	32.4	38.8	42.2	40.4	40.2	41.9
France	24.5	25.0	24.1	22.0	24.7	24.5	26.2	29.8	34.4	32.9	36.5	36.2	34.5	40.3	45.0	51.5	52.4	58.9	68.1
United Kingdom	20.0	26.1	27.2	26.4	24.2	25.0	24.5	27.6	32.5	36.2	38.2	41.7	43.9	67.7	71.0	84.1	82.7	75.9	76.5
Italy	36.9	36.9	37.7	33.3	42.3	45.5	43.8	47.2	55.1	54.7	60.1	61.7	63.6	67.2	70.7	72.9	73.5	74.5	76.5
China	30.2	42.8	32.7	34.2	56.2	46.8	28.3	28.1	34.8	29.2	32.5	32.9	35.1	39.8	42.0	46.4	42.2	42.9	43.5
South Korea	33.5	28.0	28.8	30.5	28.9	26.0	22.4	22.9	24.9	25.6	24.5	28.5	33.4	29.5	29.6	30.0	33.5	44.3	51.8
Taiwan	44.0	44.9	39.6	36.8	34.9	25.0	23.8	28.5	29.0	30.5	31.8	32.3	36.9	34.1	36.5	40.3	38.6	42.5	40.9
Singapore	79.8	66.7	74.3	60.9	52.0	47.6	41.5	39.6	44.6	90.1	95.7	105.2	105.0	120.4	155.8	174.6	210.6	235.1	240.9
Hong Kong	56.8	46.0	47.3	47.4	68.4	96.4	65.6	67.6	91.2	155.8	229.4	260.0	221.4	462.6	612.2	565.1	519.3	482.0	827.4
Argentina	34.5	43.2	33.9	26.0	25.2	23.0	22.1	26.0	23.5	17.3	18.7	34.6	50.5	57.7	61.3	52.5	51.3	57.5	54.3
Bolivia	128.8	171.0	123.2	138.0	132.3	109.9	95.2	92.6	86.5	87.9	86.6	89.5	93.5	89.0	84.0	85.9	94.4	100.1	104.1
Brazil	9.7	8.6	8.0	8.3	7.6	8.3	5.5	4.6	4.4	15.2	9.3	13.6	15.7	24.3	35.7	39.0	42.4	38.6	
Chile	118.2	130.4	117.4	99.1	92.1	73.5	67.4	67.5	72.8	77.3	86.5	87.8	89.9	90.8	93.3	98.8	93.3	96.7	92.3
Colombia	77.8	81.8	86.3	94.5	79.7	60.9	55.8	50.0	55.1	53.0	51.6	52.4	57.4	63.7	80.3	82.5	82.4	87.6	83.4
Costa Rica	88.4	52.5	31.7	29.0	39.7	23.9	28.2	27.0	34.3	33.1	29.6	30.1	26.0	29.3	29.8	32.0	60.2	144.1	
Ecuador	87.2	76.4	71.0	52.6	76.9	79.1	57.0	65.1	46.7	58.2	55.5	61.5	62.5	72.6	74.6	76.6	81.5	95.1	99.1
Honduras	98.5	103.7	99.6	93.4	125.1	117.3	111.7	109.1	96.2	119.2	74.4	80.1	86.1	85.2	79.2	85.3	89.2	97.5	109.2
Jamaica	93.3	97.8	103.1	106.8	74.4	65.9	71.4	72.5	86.3	99.5	81.4	64.7	61.6	65.0	62.2	71.8	82.2	97.2	110.7
Mexico	35.3	42.3	32.5	75.8	68.0	63.9	35.5	32.5	42.2	48.9	53.0	64.8	166.5	200.7	248.0	601.2	603.8	382.7	377.2
Panama	80.1	87.6	89.2	105.8	109.9	87.3	85.5	80.4	522.9	197.0	198.9	247.3	214.3	197.7	161.6	155.1	98.5	100.0	108.6
Peru	29.2	47.0	40.5	49.3	44.9	29.0	33.1	23.9	16.8	23.5	36.9	53.3	50.6	62.9	91.5	97.5	96.4	95.2	90.8
Uruguay	73.7	88.1	71.0	58.3	36.6	44.6	46.9	46.0	47.0	46.9	50.2	56.9	65.3	68.2	77.7	83.1	84.0	84.7	86.0
Venezuela	105.5	111.4	128.2	84.3	82.3	89.8	71.8	58.4	70.4	53.1	59.7	61.1	71.9	73.9	77.4	91.6	82.2	95.8	99.9
All countries ^a	19.5	20.3	19.3	20.6	22.3	21.5	21.1	23.9	25.8	27.3	29.2	29.8	33.2	37.5	44.9	48.1	46.5	45.5	44.3
Imports																			
United States	13,427.7	16,816.2	17,625.8	24,121.4	34,610.2	33,209.1	31,453.0	31,556.3	33,635.0	37,862.6	35,558.5	36,752.8	44,104.0	49,634.5	59,520.0	71,409.2	71,721.8	77,899.7	91,969.0
Canada	2,067.4	2,341.9	2,193.6	2,719.6	3,558.3	3,120.7	3,531.2	3,762.2	4,493.4	5,021.5	5,944.6	6,771.7	6,959.5	7,199.8	9,090.1	11,124.9	11,591.3	12,830.8	12,613.1
Japan	1,489.0	1,539.6	1,475.7	1,872.0	2,320.6	2,134.0	2,655.3	3,475.0	4,746.7	6,090.0	7,294.3	7,401.1	7,743.2	10,290.1	14,244.9	21,433.9	23,271.4	23,808.7	21,519.2
Germany	6,958.3	6,792.8	6,533.2	7,109.9	7,703.9	7,796.0	8,620.5	9,919.1	11,054.9	12,045.1	15,329.9	16,646.1	15,877.9	17,389.2	21,110.2	24,443.4	23,300.8	23,819.0	26,742.2
France	3,661.2	3,884.9	3,875.3	3,366.6	3,930.5	3,950.7	4,593.1	5,357.2	6,966.6	6,973.7	8,082.5	8,337.9	7,750.6	8,728.2	10,136.9	11,920.0	12,269.8	14,597.2	17,500.7
United Kingdom	3,711.9	4,894.0	5,487.4	5,882.1	6,023.6	6,246.8	6,311.6	7,498.2	9,274.8	10,602.4	10,305.2	9,898.7	10,252.6	11,855.1	13,708.6	16,846.6	20,166.0	21,480.6	23,435.0
Italy	2,934.3	2,696.8	2,812.7	2,570.2	3,127.5	3,497.1	3,843.1	4,809.0	6,024.9	6,554.8	7,353.6	7,571.2	7,200.7	6,447.7	7,947.8	8,348.9	8,070.4	9,225.5	10,551.4
China	529.6	810.5	605.3	835.7	2,293.0	4,554.8	2,607.9	3,093.9	4,803.4	4,408.7	4,209.0	5,032.6	6,547.9	10,461.9	13,176.5	14,808.8	14,507.5	18,156.7	20,587.0
South Korea	1,411.1	1,427.8	1,521.8	2,240.3	2,682.2	2,361.8	2,775.9	3,646.4	4,609.4	4,839.4	5,349.8	5,907.8	6,289.1	6,630.1	8,347.6	11,255.9	13,398.9	16,553.6	13,605.0
Taiwan	1,564.9	1,663.6	1,474.9	1,822.5	2,391.3	1,939.4	2,799.6	3,993.7	5,055.0	5,693.5	6,165.3	6,829.4	8,357.8	9,063.7	10,437.0	14,192.4	14,841.7	18,261.7	18,572.1
Singapore	2,209.0	2,412.7	2,606.6	3,174.3	3,538.1	3,220.6	3,680.8	4,811.8	6,479.2	7,423.6	9,041.2	10,300.1	11,361.5	14,255.9	19,851.5	26,049.7	26,845.3	26,954.5	25,228.7
Hong Kong	2,140.4	2,410.6	2,232.6	2,765.7	3,931.6	3,397.5	3,423.1	4,873.4	7,808.9	7,505.5	9,455.7	11,441.5	14,122.6	14,559.4	18,094.0	22,859.3	23,763.0	27,982.1	25,170.2
Argentina	1,083.5	1,150.2	505.6	342.6	357.4	327.5	448.3	616.6	410.7	250.2	266.8	689.8	1,412.4	1,555.1	1,851.1	1,314.5	1,432.7	2,001.2	1,973.8
Bolivia	15.9	26.7	7.2	11.7	7.3	7.4	15.6	15.4	16.5	19.5	37.7	36.9	40.5	47.4	33.6	44.6	122.0	184.2	133.0
Brazil	768.8	655.9	690.1	617.9	647.0	679.6	1,225.5	1,141.7	1,212.4	1,314.9	1,414.7	1,304.9	1,266.3	1,771.6	2,577.8	3,950.3	4,694.4	5,653.3	5,000.7
Chile	272.3	320.3	125.5	104.5	115.2	84.1	137.2	159.1	253.1	418.6	382.8	527.1	525.6	577.8	620.8	802.7	811.8	1,006.7	1,203.7
Colombia	242.8	253.7	268.6	305.6	234.8	158.9	168.5	190.3	294.4	284.2	310.3	290.5	333.5	394.4	709.2	925.2	836.7	1,140.2	1,260.3
Costa Rica	84.9	82.4	30.1	19.6	31.5	21.5	35.3	40.5	46.7	47.4	48.3	63.2	68.7	103.9	111.8	91.6	113.3	214.0	931.9
Ecuador	86.4	58.7	114.4	48.5	123.7	125.9	74.1	88.4	96.9	74.0	77.0	114.4	103.0	98.4	100.7	108.9	81.6	216.6	212.5
Honduras	20.5	21.7	18.5	12.9	27.5	26.2	25.3	28.0	14.3	20.5	17.0	19.0	16.0	36.4	63.0	45.2	47.7	58.7	62.8
Jamaica	18.3	25.5	18.9	24.5	32.2	19.4	19.6	25.1	32.1	45.4	72.8	38.0	35.3	36.9	52.6	61.3	70.8	80.0	69.4
Mexico	849.9	1,104.5	776.3	881.1	1,313.0	1,411.6	1,390.2	1,187.6	2,456.9	2,788.6	3,266.7	3,694.8	5,192.1	5,623.5	7,278.4	7,634.0	8,968.7	11,257.5	14,282.5
Panama	334.7	314.7	139.9	116.2	183.8	40.5	187.0	188.6	1,059.5	462.6	497.5	1,034.6	927.9	898.4	752.1	624.2	347.7	371.2	451.7
Peru	145.4	224.1	187.2	141.9	96.4	81.4	162.1	164.8	54.6	53.9	73.9	105.7							

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Apparent consumption																			
United States	109,041.3	114,044.3	122,200.2	130,240.1	155,159.6	157,081.1	157,768.3	122,245.1	127,952.7	129,858.9	127,988.5	130,629.5	149,999.9	159,536.6	174,816.9	210,704.5	241,291.9	299,127.5	362,579.3
Canada	4,462.4	4,423.6	4,240.7	4,476.6	5,098.4	5,116.6	6,298.1	7,165.4	8,126.7	8,391.9	8,777.4	10,465.2	11,176.2	11,310.2	13,318.0	15,160.9	14,496.4	16,459.1	18,114.8
Japan	79,631.7	88,440.3	92,725.7	103,026.2	121,115.9	123,019.8	128,812.0	131,556.6	154,204.7	171,494.7	185,006.9	160,219.7	155,968.9	135,564.2	154,009.8	169,683.0	185,011.2	189,060.9	
Germany	31,748.1	32,516.0	32,338.4	33,912.1	34,184.4	35,163.9	37,089.1	38,757.7	40,436.9	42,618.6	48,877.6	56,912.5	54,703.1	53,614.2	54,344.5	57,884.9	57,829.1	59,324.0	63,819.7
France	14,933.5	15,534.5	16,060.5	15,281.7	15,942.8	16,111.4	17,526.2	17,972.2	20,231.3	21,216.4	22,164.9	23,032.3	22,464.6	21,657.8	22,532.3	23,129.2	23,416.5	24,763.1	25,680.9
United Kingdom	18,575.1	18,748.0	20,158.5	22,300.1	24,886.0	25,034.6	25,799.0	27,125.5	28,498.5	29,325.8	26,994.5	23,732.9	23,339.7	17,507.5	19,297.8	20,025.0	24,390.0	28,307.0	30,632.9
Italy	7,946.6	7,303.4	7,454.9	7,707.8	7,386.3	7,682.1	8,778.8	10,195.6	10,941.7	11,986.9	12,245.3	12,271.2	11,314.4	9,599.1	11,241.7	11,456.7	10,986.3	12,390.8	13,785.4
China	1,756.0	1,893.8	1,849.9	2,440.6	4,077.5	9,735.0	9,207.5	11,001.7	13,821.3	15,092.2	12,957.6	15,296.8	18,674.5	26,273.5	31,348.5	31,921.9	34,382.3	42,328.3	47,328.3
South Korea	4,209.4	5,102.1	5,291.6	7,340.9	9,288.1	9,082.6	12,379.5	15,937.7	18,497.4	18,926.6	21,820.2	20,706.9	18,836.0	22,468.1	28,240.8	37,568.1	40,045.8	37,371.1	26,251.8
Taiwan	3,559.7	3,704.4	3,725.5	4,951.7	6,847.8	7,753.5	11,775.5	14,007.8	17,456.5	18,692.2	19,405.0	21,117.6	22,622.1	26,568.3	28,576.0	35,174.3	38,479.9	42,979.8	45,428.7
Singapore	2,767.8	3,616.1	3,507.3	5,212.5	6,807.1	6,773.0	8,866.7	12,154.3	14,527.3	8,239.3	9,443.2	9,787.4	10,816.8	11,843.9	12,739.3	14,921.2	12,748.6	11,464.8	10,474.3
Hong Kong	3,770.6	5,240.3	4,719.6	5,853.5	5,748.9	3,524.6	5,221.0	7,211.4	8,560.6	4,818.5	4,121.1	4,400.2	6,379.6	3,147.3	2,955.7	4,045.1	4,576.3	5,806.0	3,042.0
Argentina	3,140.3	2,665.1	1,492.5	1,316.1	1,420.8	1,424.8	2,024.3	2,372.2	1,746.1	1,446.1	1,425.1	1,993.4	2,796.7	2,697.1	3,018.0	2,502.3	2,794.4	3,478.5	3,635.4
Bolivia	12.3	15.6	5.9	8.5	5.5	6.7	16.4	16.6	19.0	22.2	43.5	41.2	43.3	53.3	40.0	51.9	129.3	184.1	127.7
Brazil	7,956.6	7,614.8	8,004.5	7,720.4	7,797.5	8,915.2	14,834.5	20,890.5	26,221.4	30,075.4	9,285.7	14,079.1	9,310.5	11,265.5	10,605.2	11,060.2	12,029.7	13,326.9	12,941.1
Chile	230.4	245.7	106.9	105.4	125.1	114.4	203.5	235.7	347.7	541.8	442.6	600.5	584.8	636.5	665.5	812.3	870.5	1,040.5	1,303.5
Colombia	312.0	310.1	311.3	323.3	294.7	260.9	301.7	380.3	533.9	536.3	601.7	553.9	581.4	618.9	882.9	1,121.8	1,015.0	1,302.2	1,511.5
Costa Rica	96.0	156.8	94.7	67.8	79.2	89.8	125.1	150.2	136.2	143.2	163.0	210.1	264.7	354.3	375.3	325.0	354.4	355.3	646.8
Ecuador	99.1	76.9	161.1	92.1	160.9	159.1	130.1	135.9	207.2	127.1	138.7	186.0	165.0	135.5	134.9	142.1	100.1	227.6	214.5
Honduras	20.8	20.9	18.6	13.8	22.0	22.4	22.6	25.7	14.9	17.2	22.8	23.7	18.6	42.7	79.6	53.0	53.5	60.2	57.5
Jamaica	19.6	26.1	18.4	23.0	43.3	29.5	27.4	34.7	37.2	45.6	89.3	58.7	57.3	56.7	84.6	85.3	86.1	82.2	62.7
Mexico	2,405.4	2,609.0	2,389.6	1,163.0	1,929.8	2,209.0	3,917.4	3,649.0	5,823.4	5,700.1	6,161.1	5,700.0	3,118.9	2,801.6	2,934.4	1,269.9	1,485.3	2,941.9	3,786.3
Panama	417.6	359.2	156.8	109.8	167.3	46.4	218.8	234.6	202.6	234.8	250.2	418.3	433.0	454.5	465.5	402.4	352.9	371.2	416.1
Peru	497.8	477.1	462.2	287.8	214.9	280.9	490.1	689.6	325.3	229.2	200.3	198.1	276.2	231.6	269.7	463.6	522.7	587.1	502.2
Uruguay	85.1	137.9	90.8	69.3	71.2	62.9	119.6	166.5	160.2	181.7	171.3	141.2	270.4	170.1	203.2	171.0	219.3	229.7	221.8
Venezuela	491.7	490.0	531.1	237.9	258.3	368.6	460.7	628.5	963.6	613.3	432.9	531.5	859.0	881.6	504.7	371.8	451.0	818.4	905.0
All countries ^a	349,076.0	369,245.7	386,018.3	416,724.7	476,122.4	494,134.0	518,832.7	510,513.1	570,855.1	590,541.0	594,187.8	631,624.1	619,950.8	623,871.2	642,293.4	740,101.3	811,378.1	929,980.6	1,013,276.8
Pharmaceuticals																			
Production																			
United States	43,032.4	43,433.1	44,613.9	44,682.9	45,432.1	46,511.2	49,084.6	53,983.5	57,462.9	60,740.1	63,946.3	69,415.7	73,901.9	74,993.8	79,950.3	83,182.2	89,854.6	97,505.4	94,633.7
Canada	2,072.9	2,322.4	2,308.4	2,250.3	2,435.1	2,875.3	2,956.2	3,496.2	3,616.8	3,488.7	3,755.0	3,795.1	3,955.0	4,162.9	4,216.2	4,854.0	5,010.0	5,562.0	5,684.1
Japan	35,555.7	35,769.8	36,740.6	36,129.1	36,145.9	36,119.7	37,639.7	41,447.1	43,224.5	44,865.6	44,850.0	45,104.1	45,064.9	45,830.0	48,252.1	50,263.7	50,787.8	51,421.8	46,114.6
Germany	17,630.4	17,065.4	16,651.4	15,792.7	16,049.3	15,900.7	16,533.0	16,943.6	17,287.8	17,477.2	18,586.3	20,947.0	20,705.3	19,505.3	20,265.0	21,025.2	20,904.3	21,268.6	20,636.0
France	12,654.9	12,749.6	12,690.4	12,339.5	12,515.6	12,749.8	13,352.0	13,567.9	14,604.8	15,084.6	15,783.0	16,044.8	16,951.1	17,391.3	17,573.5	18,464.1	19,108.8	20,151.6	19,692.9
United Kingdom	11,525.4	10,592.4	11,176.6	10,505.6	11,086.5	11,295.5	11,991.7	12,939.3	13,844.8	14,072.2	14,185.9	14,667.1	15,918.8	17,525.4	18,605.9	19,211.5	19,906.0	20,386.1	19,998.8
Italy	8,037.8	7,601.7	6,665.1	6,419.5	7,271.4	7,003.9	5,817.6	5,634.7	3,980.0	3,860.2	4,458.8	4,254.0	9,699.0	9,255.6	9,406.4	9,616.0	9,798.8	9,980.6	9,612.0
China	2,603.1	2,934.0	3,248.0	3,387.6	3,756.4	4,241.5	4,718.2	5,666.1	6,969.0	7,606.2	6,955.4	7,804.9	8,683.2	9,382.7	10,269.0	10,885.4	11,906.6	12,461.5	12,665.5
South Korea	2,447.6	2,350.5	2,635.4	2,636.1	2,941.4	3,024.0	3,209.0	3,331.1	4,242.5	3,644.1	4,381.7	4,062.0	4,210.6	4,313.1	4,532.8	4,484.4	4,715.6	4,814.6	4,229.5
Taiwan	711.1	634.4	714.3	719.1	818.8	845.2	1,190.2	1,105.7	1,346.2	1,324.0	1,427.0	1,532.1	1,602.0	1,718.9	1,846.7	1,925.2	2,015.6	2,162.8	2,132.7
Singapore	357.8	370.1	366.7	413.7	548.6	510.8	695.8	800.8	787.0	834.9	851.8	1,128.3	1,043.3	1,036.0	944.1	1,890.4	2,003.3	2,627.5	2,510.4
Hong Kong	159.1	185.1	161.5	105.3	152.8	127.6	150.1	156.3	164.7	158.9	139.6	163.5	187.9	196.6	227.6	235.3	158.4	144.7	
Argentina	4,031.3	3,889.0	2,940.3	3,238.4	3,261.0	3,340.5	3,739.0	3,792.4	3,356.4	2,726.7	3,215.7	1,054.1	187.8	3,083.9	3,299.5	3,208.1	3,395.2	3,672.0	3,602.6
Bolivia	38.3	35.5	43.7	32.4	28.8	23.8	21.9	21.1	28.2	27.5	28.4	26.1	28.6	37.1	40.9	51.5	69.5	66.4	
Brazil	9,562.8	9,031.8	9,028.0	7,995.7	8,434.5	8,941.8	6,273.6	3,514.1	1,526.7	608.7	5,689.9	3,917.3	6,528.4	7,238.4	7,982.1	8,177.2	8,497.7	8,761.1	8,243.1
Chile	317.0	341.1	297.3	270.6	316.0	324.5	358.9	376.5	396.7	440.0	467.7	529.6	591.5	692.4	684.9	652.2	609.1	771.2	753.6
Colombia	703.4	715.1	712.3	680.5	708.3	790.5	786.8	891.2	819.1	844.9	853.8								

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Exports																			
United States	7,521.3	7,482.5	7,180.9	7,027.6	6,772.9	6,452.9	6,944.3	6,439.2	7,239.1	6,004.3	6,046.3	6,179.4	6,908.2	6,967.6	7,206.8	7,513.3	8,182.4	8,795.0	8,731.6
Canada	436.4	585.7	504.4	532.6	451.7	411.6	395.5	448.9	372.1	305.6	379.8	358.8	532.7	518.3	645.6	739.5	771.8	1,021.9	988.0
Japan	1,383.9	1,380.4	1,281.1	1,271.1	1,197.5	1,196.1	1,138.0	1,083.7	1,172.8	1,226.3	1,317.7	1,435.7	1,633.2	1,583.3	1,511.8	1,710.8	1,897.9	1,996.1	1,732.5
Germany	8,296.8	8,930.6	8,207.2	7,649.7	7,765.5	7,732.1	7,479.9	7,460.5	8,434.4	8,157.3	8,295.5	8,541.3	8,685.1	9,385.8	10,327.8	10,201.1	10,208.5	11,931.8	13,790.9
France	5,178.7	5,396.3	9,391.0	4,869.8	4,710.9	4,619.5	4,307.7	4,252.5	4,597.2	4,843.4	4,964.4	5,236.5	5,708.4	6,651.1	6,568.1	7,113.0	7,030.5	8,169.8	9,049.3
United Kingdom	5,869.0	6,020.2	5,866.7	5,354.3	5,295.1	5,263.3	5,417.3	5,412.5	5,933.3	5,805.1	6,067.0	6,366.4	6,818.9	8,105.2	7,958.2	9,257.2	9,071.0	9,265.5	8,523.6
Italy	2,693.3	2,947.2	2,711.3	2,574.8	2,667.0	2,780.6	2,385.7	2,223.1	2,419.8	2,091.3	2,027.3	2,068.3	2,909.8	3,508.6	3,652.2	4,242.7	4,227.1	4,586.1	4,728.9
China	736.4	774.7	726.5	760.6	787.6	778.8	828.1	860.7	1,040.0	1,096.8	1,098.2	1,241.1	1,334.9	1,259.2	1,650.1	1,845.2	1,661.9	1,583.6	1,670.8
South Korea	69.0	71.6	75.2	66.5	71.0	94.9	129.1	121.7	114.5	122.7	128.3	141.9	170.5	188.2	212.7	237.2	264.0	292.9	244.2
Taiwan	116.0	154.5	134.0	124.3	106.9	90.4	97.3	94.2	96.5	95.6	96.1	109.0	111.9	92.9	99.5	102.4	102.3	102.3	69.5
Singapore	547.9	491.1	482.0	433.0	334.5	343.6	344.3	309.9	349.9	315.5	297.3	298.4	302.9	440.5	536.4	632.0	612.0	626.6	525.6
Hong Kong	558.2	608.7	548.2	520.6	462.7	474.0	523.8	665.7	798.9	739.0	751.3	922.6	1,013.9	891.5	959.6	1,085.7	1,078.3	973.7	831.0
Argentina	144.5	152.3	131.6	76.9	72.9	51.0	52.1	50.7	48.3	51.9	63.6	94.0	88.9	115.9	143.7	172.2	215.4	301.3	277.1
Bolivia	0.5	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.5	0.2	0.5
Brazil	150.5	188.0	179.6	129.3	132.6	140.0	130.8	146.2	130.6	122.8	119.9	146.1	151.6	138.2	164.5	205.7	216.4	230.4	256.7
Chile	0.8	0.6	1.4	0.7	2.5	4.2	3.1	3.6	4.1	7.4	16.2	22.7	21.2	26.9	24.7	25.9	29.7	33.0	36.7
Colombia	42.5	51.4	40.3	41.0	40.4	40.1	35.6	41.5	24.7	27.0	23.8	32.6	40.5	53.7	75.5	124.4	153.8	182.4	183.9
Costa Rica	18.2	19.5	17.3	16.8	13.6	13.4	13.7	14.6	16.0	17.2	17.8	27.2	32.5	36.5	39.5	48.3	50.7	73.4	81.9
Ecuador	45.6	36.8	7.7	4.9	3.9	5.9	3.7	3.4	2.7	1.7	3.0	5.7	6.3	10.4	15.5	26.4	25.5	26.0	26.4
Honduras	3.5	3.5	2.2	2.5	5.6	4.3	2.6	1.2	1.5	1.9	0.6	1.8	0.7	1.4	0.7	1.9	1.1	1.7	2.1
Jamaica	7.9	6.0	8.3	9.0	7.3	7.1	5.9	4.5	4.4	4.4	4.8	4.2	2.7	2.3	1.9	2.5	3.0	0.2	0.2
Mexico	162.2	178.9	123.2	140.5	158.5	101.5	67.5	68.8	119.7	180.3	153.3	161.5	265.9	253.4	328.0	459.7	598.2	674.9	734.0
Panama	9.4	8.0	12.2	7.4	8.6	13.4	17.7	15.6	92.8	10.7	11.6	12.3	19.6	15.7	19.5	2.0	29.2	19.8	21.9
Peru	20.4	19.3	12.0	6.6	6.7	7.4	3.2	3.4	3.8	8.3	6.7	5.7	8.5	9.8	18.0	20.1	25.5	23.8	27.1
Uruguay	8.2	8.4	11.6	8.3	8.8	8.3	8.6	7.8	9.5	7.1	9.1	20.4	18.8	16.4	17.9	29.3	25.5	24.7	26.7
Venezuela	1.6	2.4	3.9	0.9	1.7	4.4	1.4	2.3	0.9	3.4	4.9	10.3	21.9	26.7	30.2	43.9	45.3	38.5	54.2
All countries ^a	52,335.8	54,554.7	55,282.2	48,626.8	47,969.4	47,309.6	47,133.3	46,995.7	51,467.5	49,418.5	50,947.2	54,253.7	60,300.1	67,279.8	71,332.6	75,601.8	77,018.1	84,808.4	86,135.0
Import penetration (percent)																			
United States	6.2	7.5	7.9	8.1	8.9	8.7	7.5	6.6	6.6	6.3	5.7	5.8	6.4	7.4	7.4	7.7	7.7	9.2	10.4
Canada	48.9	47.4	48.4	49.9	44.3	32.9	31.9	27.1	28.8	28.3	28.1	29.4	32.7	34.0	34.9	32.1	32.3	33.3	31.9
Japan	10.8	11.5	11.1	10.0	9.9	9.5	9.8	9.3	10.2	9.1	8.0	8.0	8.6	9.4	9.4	8.9	7.8	7.7	6.4
Germany	32.6	32.3	37.4	31.5	31.4	32.2	31.1	30.5	32.4	30.3	28.5	28.8	30.5	34.9	38.8	38.2	39.4	42.4	47.5
France	25.4	27.1	32.0	24.5	23.6	23.3	21.1	21.0	22.6	23.6	24.0	25.1	26.9	29.8	31.5	32.9	32.1	33.7	34.5
United Kingdom	23.7	31.2	33.9	31.3	30.6	29.6	25.6	23.4	24.5	24.0	23.0	24.3	25.1	28.0	26.7	28.9	29.1	31.8	29.8
Italy	33.4	38.5	48.1	43.5	40.0	43.5	50.5	51.0	75.9	74.7	66.8	69.3	39.9	41.8	38.9	40.5	43.7	46.9	45.5
China	2.3	3.6	4.8	4.6	6.1	6.9	7.7	9.9	11.0	7.0	9.7	11.2	9.9	9.4	9.4	10.2	9.7	9.0	7.8
South Korea	9.6	10.7	11.2	11.8	11.7	10.0	8.5	8.4	8.0	9.5	8.4	10.4	10.3	11.9	12.6	14.3	14.9	14.1	10.6
Taiwan	46.8	58.5	52.9	48.7	46.2	42.3	30.0	32.6	27.5	26.8	24.7	24.6	27.3	27.5	27.4	27.4	25.8	21.7	
Singapore	170.3	152.6	158.4	110.4	64.3	69.1	44.4	37.2	40.5	38.0	33.8	29.6	29.8	42.8	54.7	31.1	29.0	23.9	17.6
Hong Kong	255.2	245.2	246.3	269.1	214.7	249.9	229.4	229.0	283.5	305.9	258.1	297.3	353.3	312.1	294.1	251.0	285.0	320.6	258.0
Argentina	11.4	10.9	12.4	10.1	9.7	8.3	6.9	6.3	5.6	5.4	4.4	18.6	75.6	12.6	14.2	13.3	14.1	15.3	15.4
Bolivia	97.5	129.0	57.5	60.0	61.6	79.6	63.0	48.6	39.6	36.9	35.5	42.9	46.4	47.4	42.0	41.1	33.6	28.2	29.5
Brazil	5.7	5.9	6.1	4.7	3.7	4.1	6.9	10.0	18.9	45.2	7.7	11.6	6.2	7.6	9.6	10.8	12.7	14.1	13.4
Chile	37.6	42.0	36.3	34.2	30.5	25.3	19.4	18.6	18.0	17.8	15.7	15.9	16.6	17.3	19.2	23.6	26.2	23.9	21.5
Colombia	26.9	28.9	29.8	25.7	24.1	22.7	16.7	13.2	13.4	11.5	10.7	8.6	8.8	13.9	18.1	19.4	21.8	25.9	28.0
Costa Rica	127.3	101.1	61.7	67.8	76.6	73.7	72.7	63.7	57.5	67.7	67.5	66.9	66.3	53.7	41.4	52.2	85.6	98.2	99.5
Ecuador	106.3	108.7	82.7	68.5	78.5	119.0	64.3	66.0	41.2	53.6	52.2	54.9	44.1	44.4	11.8	62.1	58.4	60.1	57.9
Honduras	175.0	191.5	187.9	226.0	217.2	215.0	168.7	144.1	154.9	150.2	76.0	81.5	66.4	77.0	70.3	75.7	68.9	75.3	74.0
Jamaica	102.9	105.3	118.3	115.9	75.6	69.2	63.5	58.9	67.9	67.0	59.1	47.4	34.8	42.5	44.4	48.8	52.1	65.4	49.9
Mexico	23.4	24.2	28.9	22.3	16.2	16.0	11.0	9.5	12.0	13.6	14.4	16.6	17.7	18.1	19.3	17.2	20.4	20.0	20.0
Panama	156.2	163.5	154.5	161.4	159.9	147.8	131.7	112.8	171.9	105.4	94.1	98.7	100.8	99.9	100.5	84.1	101.3	97.8	92.5
Peru	20.9	13.2	22.3	19.5	18.3	18.2	20.6	19.9	19.7	18.9	13.4	15.2	16.3	90.7	20.1	25.4	23.4	24.6	26.6
Uruguay	27.3	32.4	20.7	17.1	16.7	13.1	14.0	14.4	14.4	14.0	13.1	19.4	19.0	23.2	27.9	32.8	32.5	41.4	38.4
Venezuela	47.7	53.1	60.1	54.5	54.9	48.6	38.1	36.6	33.3	17.7	15.0	19.4	20.4	21.3	22.0	27.9	31.5	36.1	39.1
All countries ^a	26.2	27.5	28.7	25.9	25.1	24.3	23.2	21.9	23.0	21.4	20.4	21.1	22.0						

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
(Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Imports																			
United States	2,458.3	2,984.4	3,274.3	3,385.8	3,776.5	3,787.0	3,450.2	3,411.0	3,569.3	3,674.4	3,502.8	3,927.0	4,589.9	5,386.1	5,835.4	6,363.5	6,854.9	8,998.7	10,018.0
Canada	1,196.1	1,238.3	1,287.6	1,284.1	1,247.2	1,055.6	1,085.0	1,063.7	1,193.8	1,133.6	1,226.7	1,327.3	1,580.4	1,788.8	1,873.8	1,941.8	2,028.4	2,264.6	2,341.4
Japan	4,038.3	4,328.0	4,372.5	3,811.1	3,775.7	3,620.8	3,872.6	4,070.9	4,637.6	4,285.0	3,758.8	3,778.3	4,053.8	4,505.6	4,716.1	4,683.3	4,147.6	4,109.3	3,050.9
Germany	5,141.9	4,799.1	5,659.9	4,344.1	4,393.6	4,365.6	4,442.4	4,471.6	4,686.9	4,422.6	4,501.2	5,352.3	5,493.2	5,622.3	6,491.8	6,706.9	6,932.0	6,868.0	7,022.2
France	2,872.0	3,104.8	2,808.0	2,695.6	2,622.6	2,600.3	2,514.2	2,562.4	3,013.4	3,243.8	3,501.8	3,730.5	4,204.5	4,696.3	5,093.2	5,564.2	5,681.4	6,079.2	6,014.1
United Kingdom	2,200.0	2,625.8	3,131.6	2,718.9	2,819.9	2,676.8	2,531.2	2,543.7	2,878.8	2,846.3	2,705.2	2,953.8	3,345.7	3,917.3	4,083.7	4,370.8	4,649.4	5,189.9	4,806.3
Italy	2,660.0	2,904.7	3,335.1	2,840.7	2,958.7	3,102.8	3,193.9	3,192.2	3,657.2	3,647.5	3,772.2	3,789.2	4,260.2	4,166.7	3,824.2	3,925.7	4,280.9	4,765.2	4,547.3
China	56.5	101.5	149.8	148.4	217.7	279.8	349.3	547.9	757.3	515.4	648.5	852.7	834.7	863.4	919.2	1,038.9	1,103.6	1,070.5	942.3
South Korea	246.3	263.5	313.2	332.1	365.9	319.1	285.4	295.7	369.2	363.3	386.2	451.8	458.6	550.8	613.2	694.2	767.0	741.6	485.3
Taiwan	408.5	456.7	477.5	437.7	479.3	455.7	439.4	452.4	440.7	414.9	418.3	448.0	536.6	589.4	637.9	674.3	719.3	717.1	614.3
Singapore	390.8	387.8	388.3	337.0	333.5	322.6	309.5	312.9	323.8	335.3	296.2	289.3	319.8	447.4	486.8	574.7	564.2	627.7	420.2
Hong Kong	746.6	814.2	751.6	684.7	690.3	717.5	722.8	844.5	899.9	829.9	864.7	1,073.9	1,116.1	1,051.6	1,196.6	1,295.3	1,199.7	1,185.0	961.5
Argentina	486.9	445.8	387.0	344.6	330.7	292.2	274.6	254.9	197.9	157.7	144.8	221.5	307.6	421.6	515.6	466.6	522.0	610.9	616.6
Bolivia	60.2	72.9	31.7	24.5	22.7	29.7	23.4	15.7	15.8	14.3	14.7	20.0	21.8	24.5	26.8	29.2	26.2	27.2	28.6
Brazil	561.1	547.1	563.0	382.0	319.7	377.3	457.0	382.8	340.8	413.5	466.5	512.1	432.0	598.0	842.7	973.8	1,209.6	1,403.5	1,264.5
Chile	136.8	163.9	124.2	108.4	111.8	96.5	81.4	82.5	83.0	90.6	83.8	95.6	113.6	139.6	156.9	191.0	207.9	232.2	206.1
Colombia	209.0	227.5	237.2	191.2	186.7	198.8	145.9	129.4	123.1	106.3	102.3	85.3	104.2	160.7	223.2	270.2	305.0	364.0	403.7
Costa Rica	115.7	94.2	62.5	74.0	76.3	75.0	70.8	65.4	58.6	72.3	59.5	70.6	77.2	97.5	97.0	83.7	94.6	100.5	112.7
Ecuador	182.6	173.6	205.7	154.7	157.2	168.1	155.9	154.4	98.4	128.8	117.8	156.4	99.2	99.6	145.6	148.9	154.1	184.8	178.1
Honduras	129.1	131.7	110.0	132.2	133.4	133.6	88.9	83.3	96.0	88.1	58.9	59.9	42.8	67.1	66.0	78.8	69.9	79.5	70.3
Jamaica	48.9	53.7	70.2	59.0	39.3	32.5	31.0	31.4	37.5	37.1	34.2	26.3	21.3	26.6	32.9	38.0	37.7	51.3	27.9
Mexico	513.3	540.5	405.8	295.9	348.9	360.4	247.4	245.3	309.8	350.5	390.7	441.5	483.6	618.1	711.1	585.9	731.9	826.9	836.6
Panama	145.3	148.7	156.7	145.1	142.1	132.3	123.9	114.1	184.0	79.3	89.0	102.5	116.8	137.8	148.2	107.7	156.9	200.3	176.4
Peru	164.4	100.9	140.3	108.3	90.4	102.8	143.6	140.1	94.0	65.0	64.5	79.3	93.1	93.1	109.7	160.0	145.5	168.0	180.8
Uruguay	71.6	85.2	65.3	47.2	52.2	43.2	45.7	44.9	42.6	37.7	50.2	52.6	71.9	89.2	107.2	107.2	132.6	120.0	
Venezuela	270.3	290.1	341.9	254.4	257.5	277.1	247.9	248.6	257.4	106.9	92.7	144.1	154.6	184.7	167.3	219.0	196.9	256.4	274.2
All countries ^a	49,333.3	51,401.6	53,747.4	47,165.0	47,363.0	46,669.9	45,511.6	45,355.8	49,675.4	47,546.8	47,538.3	51,141.6	56,273.9	63,263.2	67,552.3	71,546.0	73,740.5	81,354.6	76,716.0
Apparent consumption																			
United States	39,550.9	40,027.5	41,381.8	41,580.0	42,429.9	43,700.2	45,958.9	51,311.5	54,165.0	58,355.9	61,634.4	67,210.3	71,724.4	73,174.1	78,352.1	82,236.7	88,846.4	97,709.2	96,042.5
Canada	2,448.2	2,609.7	2,658.4	2,574.6	2,814.9	3,212.8	3,397.4	3,922.6	4,149.6	4,005.8	4,360.2	4,512.7	4,828.4	5,254.0	5,375.5	6,050.8	6,273.1	6,804.7	7,340.9
Japan	37,543.4	37,782.8	39,310.2	38,169.6	38,217.1	38,203.3	39,566.3	43,558.2	45,466.6	47,051.7	47,113.5	47,138.7	47,172.0	47,860.7	50,411.1	52,372.4	52,845.4	53,535.0	47,792.9
Germany	15,779.3	14,861.1	15,122.4	13,794.3	13,995.9	13,577.6	14,281.6	14,684.1	14,480.2	14,614.1	15,804.4	18,596.3	18,014.9	16,120.4	16,718.7	17,555.9	17,589.1	16,204.8	14,790.1
France	11,298.0	11,444.8	8,779.8	11,019.6	11,125.8	11,170.3	11,893.2	12,214.4	13,352.4	13,753.2	14,613.9	14,842.8	15,656.3	15,739.2	16,193.9	16,914.6	17,716.7	18,061.1	17,428.5
United Kingdom	9,290.1	8,416.1	9,233.6	8,689.7	9,216.9	9,028.7	9,877.3	10,880.2	11,740.7	11,866.2	11,782.9	12,135.8	13,307.8	13,985.4	15,299.5	15,144.7	15,974.4	16,310.5	16,119.7
Italy	7,967.5	7,536.1	6,933.2	6,524.8	7,398.7	7,131.1	6,319.2	6,262.7	4,816.3	4,880.6	5,650.3	5,471.6	10,682.2	9,975.5	9,839.2	9,900.8	10,159.7	9,991.0	
China	2,465.4	2,782.7	3,102.0	3,225.7	3,586.5	4,053.6	4,553.2	5,553.0	6,892.6	7,352.5	6,706.2	7,624.0	8,403.6	9,164.3	9,792.3	10,223.7	11,401.2	11,948.4	12,089.7
South Korea	2,565.4	2,462.8	2,785.8	2,807.1	3,136.1	3,187.1	3,353.9	3,499.9	4,638.3	3,815.0	4,595.0	4,323.7	4,473.1	4,621.1	4,861.4	4,856.0	5,154.0	5,263.2	4,590.9
Taiwan	872.2	780.3	902.2	898.3	1,038.2	1,077.8	1,463.1	1,389.6	1,603.1	1,550.7	1,694.6	1,822.3	1,964.1	2,142.3	2,324.2	2,463.6	2,623.0	2,777.7	2,828.0
Singapore	229.5	254.1	245.1	305.3	518.5	466.8	697.4	841.7	800.3	882.2	875.7	1,132.2	1,073.1	1,044.5	889.8	1,848.2	1,947.1	2,628.6	2,386.4
Hong Kong	292.5	332.0	305.1	254.4	321.6	287.1	315.1	368.7	317.4	271.3	335.0	361.3	315.9	336.9	406.9	516.1	420.9	369.6	372.7
Argentina	4,285.1	4,077.9	3,108.8	3,408.3	3,419.7	3,536.4	3,952.5	4,033.1	3,520.1	2,895.6	3,324.5	1,193.4	4,067.7	3,358.9	3,643.6	3,510.4	3,712.8	3,981.5	4,001.5
Bolivia	61.7	56.5	55.1	40.7	36.8	37.3	37.2	32.3	40.0	38.7	41.2	46.7	46.9	51.7	63.8	71.1	77.9	96.5	96.9
Brazil	9,860.2	9,245.7	9,281.5	8,202.6	8,589.2	9,155.5	6,647.3	3,818.6	1,801.1	914.6	6,094.0	4,399.3	6,935.3	7,832.6	8,762.9	8,989.6	9,532.9	9,934.1	9,444.3
Chile	363.8	390.3	342.3	317.2	367.0	380.8	420.2	444.0	461.8	508.4	532.3	601.0	683.9	806.0	816.2	809.6	794.5	970.4	960.3
Colombia	776.0	786.6	797.2	743.8	773.7	876.1	873.9	978.6	917.6	927.9	955.6	993.1	1,179.3	1,158.7	1,236.2	1,391.3	1,398.4	1,406.5	1,443.9
Costa Rica	90.9	93.2	101.3	109.1	99.6	101.8	97.4	102.7	102.0	106.8	88.1	105.6	116.6	181.6	234.2	160.4	110.6	102.3	113.2
Ecuador	171.8	159.7	248.8	225.7	200.4	141.3	242.4	234.0	239.1	240.4	225.6	285.1	225.0	224.1	1,235.5	239.6	263.6	307.5	307.4
Honduras	73.8	68.7	58.5	58.5	61.4	62.1	52.7	57.8	62.0	58.6	77.6	73.5	64.6	87.2	93.9	104.0	101.4	105.5	95.1
Jamaica	47.5	51.																	

Appendix table 6-1.

World industry and trade data for selected countries or economies and industries: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
All other manufacturing industries^c																			
Production																			
United States	2,425,409.5	2,383,262.2	2,206,869.2	2,292,633.8	2,475,147.8	2,456,602.9	2,523,918.8	2,747,238.3	2,871,037.5	2,842,592.4	2,799,877.7	2,719,325.3	2,866,912.0	2,959,751.0	3,124,599.9	3,195,769.4	3,362,414.9	3,612,946.3	3,844,713.8
Canada	195,783.8	198,670.1	183,781.0	196,269.0	235,773.2	247,762.8	257,641.8	273,812.9	268,989.9	250,901.8	237,262.0	242,755.3	263,747.7	296,488.3	305,901.1	312,631.7	334,634.5	359,257.4	
Japan	1,630,061.8	1,585,144.5	1,625,079.2	1,681,511.8	1,781,698.0	1,883,127.5	1,936,310.5	1,944,848.9	2,096,857.4	2,206,110.9	2,323,516.1	2,465,197.8	2,383,975.5	2,253,660.0	2,183,409.3	2,200,044.3	2,236,173.2	2,278,133.0	2,270,768.9
Germany	689,492.9	668,928.0	683,529.2	717,750.9	743,748.6	774,180.0	870,805.1	900,025.2	931,735.0	946,226.0	1,006,256.6	1,184,851.8	1,155,528.3	1,050,349.2	1,071,359.4	1,085,407.6	1,074,293.2	1,100,656.1	1,162,788.1
France	511,017.4	486,445.6	496,501.6	500,628.5	512,938.5	525,159.3	546,550.8	551,913.3	576,392.1	599,385.5	608,861.6	615,635.1	616,087.2	583,131.7	610,305.8	616,183.8	609,299.5	633,540.1	676,165.3
United Kingdom	475,064.1	423,312.6	429,708.0	446,832.5	476,234.3	496,100.7	513,385.6	539,260.9	569,534.9	572,370.2	555,038.1	519,219.6	553,757.1	554,943.5	595,466.8	597,295.3	597,915.0	627,535.2	660,223.6
Italy	349,773.4	331,463.6	323,167.6	347,079.5	375,697.9	372,709.1	391,239.2	402,737.3	428,666.1	433,810.6	420,471.5	420,180.4	464,768.8	454,034.9	519,224.7	511,105.5	527,211.4	541,343.7	567,743.7
China	119,209.2	123,895.8	139,228.8	160,027.2	180,576.9	219,055.6	248,866.5	283,310.0	327,634.6	357,382.6	349,148.2	393,711.2	468,714.2	593,736.2	640,390.0	586,094.4	631,618.9	665,189.3	737,583.7
South Korea	97,169.9	104,194.4	110,526.7	124,210.9	138,947.0	147,122.2	174,666.2	203,987.6	221,469.3	229,905.0	247,082.7	267,680.9	279,619.9	294,285.6	317,841.0	347,161.2	368,216.8	390,348.4	372,182.3
Taiwan	72,506.9	71,086.0	72,992.6	81,935.3	95,121.3	103,260.7	131,155.0	142,979.4	155,107.6	154,482.7	148,937.7	160,492.4	161,112.6	166,516.3	174,215.6	181,207.7	177,005.0	189,198.6	201,325.9
Singapore	24,394.1	25,935.3	25,358.9	24,125.0	25,330.8	24,102.1	23,183.8	26,488.9	29,613.8	37,295.0	40,316.3	40,703.1	40,875.7	43,617.6	46,423.6	45,368.2	43,543.0	39,756.9	32,985.9
Hong Kong	37,228.7	40,461.0	36,643.1	47,208.3	48,599.4	44,660.6	58,192.8	66,071.6	66,927.4	61,624.7	57,621.3	55,565.1	51,611.8	44,822.5	40,258.0	37,812.9	31,619.8	31,952.3	30,969.8
Argentina	129,303.9	101,793.4	91,207.6	94,464.0	100,366.6	98,766.3	122,528.0	123,840.3	111,895.2	110,811.5	111,090.4	114,295.7	113,499.7	90,911.7	96,829.1	92,160.8	97,397.2	106,448.7	114,223.1
Bolivia	1,653.9	1,309.8	1,505.5	1,156.5	1,128.4	1,118.5	1,163.0	1,684.8	1,681.2	1,802.2	2,025.8	1,993.5	2,111.2	2,454.5	2,343.5	2,413.1	2,540.0	2,680.0	
Brazil	348,466.5	330,162.2	345,425.0	338,538.9	363,866.3	405,150.8	438,718.8	440,227.2	437,620.0	433,850.8	318,415.1	301,395.5	342,038.1	362,607.3	339,781.2	286,418.0	296,524.1	307,811.3	315,024.1
Chile	12,310.4	11,686.5	10,196.9	11,785.4	14,242.9	16,026.2	17,750.0	19,657.8	22,216.7	26,421.0	25,888.0	27,719.9	30,916.3	32,461.2	33,863.7	36,015.9	38,531.5	41,675.7	44,292.7
Colombia	19,023.4	18,591.8	18,378.4	19,202.3	20,961.2	22,512.9	25,100.0	26,965.5	29,352.4	30,287.4	30,961.0	31,407.8	32,067.9	32,382.3	33,280.8	34,246.1	34,172.4	36,442.2	37,898.4
Costa Rica	2,535.7	2,999.1	2,861.6	2,818.8	3,174.9	3,226.6	3,896.3	3,743.8	3,866.5	3,717.4	3,616.3	3,826.5	4,029.1	4,225.7	4,377.6	4,692.3	4,441.1	4,324.0	4,815.0
Ecuador	3,531.5	3,275.7	3,437.9	3,335.9	3,627.1	3,670.2	4,543.7	4,514.0	5,198.8	4,828.0	5,360.0	6,499.3	6,706.1	6,793.5	7,853.5	7,517.4	7,011.0	8,598.6	8,783.4
Honduras	1,213.3	1,199.3	1,181.4	1,154.1	1,254.9	1,265.9	1,318.4	1,438.7	1,608.0	1,690.0	1,852.3	1,850.4	2,050.3	2,119.1	2,346.6	2,278.8	2,441.2	2,640.1	2,730.1
Jamaica	2,484.5	2,444.8	2,733.3	2,929.9	2,996.8	3,079.7	3,072.6	3,327.7	3,170.2	3,342.2	3,465.9	3,508.5	3,960.8	4,051.6	4,113.9	4,076.8	4,024.5	3,980.4	4,063.2
Mexico	114,177.3	119,320.8	113,009.5	108,989.5	123,042.5	133,200.4	136,995.7	145,597.4	169,877.4	163,784.1	164,998.6	175,175.9	180,324.7	178,215.4	188,237.1	191,537.4	211,248.0	252,747.8	283,960.1
Panama	1,594.4	1,687.9	1,728.3	1,786.7	1,806.0	1,744.8	1,854.9	1,852.8	1,447.5	1,517.2	1,740.5	1,831.9	2,372.3	2,395.1	2,580.4	2,621.6	2,569.4	2,729.4	2,945.9
Peru	23,553.5	17,354.7	17,858.3	16,702.9	18,899.9	21,365.6	22,001.6	25,309.4	21,477.3	18,540.4	17,503.1	15,255.0	15,196.2	16,123.7	18,037.3	19,099.4	19,512.4	21,150.2	21,824.6
Uruguay	6,397.6	6,294.0	5,576.5	6,048.7	6,816.2	6,985.6	7,518.0	8,051.4	7,624.5	8,838.5	8,680.6	8,682.0	8,457.1	7,376.3	7,177.7	7,303.2	7,165.3	7,564.6	8,117.7
Venezuela	23,441.8	21,850.9	24,043.2	24,429.2	25,386.2	27,398.0	30,699.9	32,279.0	35,102.8	29,842.0	30,735.4	33,795.7	34,397.0	34,308.7	30,293.4	35,911.3	33,355.4	37,072.9	38,859.2
All countries ^a	9,062,529.9	8,817,230.8	8,797,074.3	9,158,259.3	9,747,690.3	10,118,423.2	10,681,834.4	11,212,708.6	11,826,755.7	12,112,815.5	12,080,178.8	12,385,758.0	12,572,058.8	12,411,342.4	12,781,129.2	12,948,885.1	13,277,352.6	13,941,381.7	14,595,265.0

^aA total of 68 countries or economies are included. Refer to country list (WEFA Group, Eddystone, PA, 1998).

^bHigh-technology industries cover aerospace, computers and office machinery, communications equipment, and pharmaceuticals. Historical data were from United Nations Industrial Development Organization, United Nations System of National Accounts, Statistics Canada, Organisation for Economic Co-operation and Development, and country sources.

^cData for all other manufacturing industries calculated (manufacturing production minus production by high-tech industries).

NOTE: Production = total gross output; import penetration = imports/apparent consumption; apparent consumption, a measure of home-market demand, is calculated by taking production plus imports minus exports (corrected for implied service costs).

SOURCE: WEFA/ICF World Industry Service, WEFA Group, database (Eddystone, PA, 2000).

Appendix table 6-2.

Production by five knowledge-intensive service industries, for selected countries or economies: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total for five knowledge-intensive service industries																			
Production																			
United States	1,807,339.6	1,717,915.6	1,738,896.8	1,809,841.9	2,004,705.0	2,092,521.5	2,175,798.6	2,413,744.7	2,628,803.1	2,732,209.1	2,736,339.4	2,694,979.0	2,748,999.2	2,850,312.8	3,004,313.3	3,017,847.2	3,170,632.4	3,301,798.8	3,484,998.5
Canada	136,663.9	125,532.9	127,273.8	127,591.8	134,344.5	136,839.3	140,969.4	153,007.8	165,092.2	170,330.6	170,375.8	175,537.5	174,703.6	175,138.2	183,236.7	180,546.3	184,403.3	186,770.1	191,354.6
Japan	658,057.5	642,936.6	663,527.8	682,503.0	714,970.8	736,529.8	767,830.2	834,627.9	884,693.2	934,745.1	947,610.0	962,878.4	969,008.2	978,009.3	1,016,470.5	1,027,791.4	1,062,979.5	1,050,789.2	1,019,063.6
Germany	333,046.1	297,903.7	289,275.8	284,426.2	291,926.5	286,405.1	291,736.6	307,550.1	323,348.6	325,445.3	334,041.6	356,639.0	373,096.7	391,813.1	409,504.4	398,100.2	408,332.6	404,978.8	404,862.9
France	240,570.6	223,383.5	224,643.0	222,001.1	234,269.9	237,992.5	259,672.7	298,469.5	324,250.6	351,993.3	374,991.2	386,474.1	411,655.7	463,998.0	478,673.9	508,713.6	567,025.6	612,841.9	608,993.9
United Kingdom	207,151.0	191,875.0	189,102.4	190,946.9	195,147.8	206,464.2	224,892.5	244,556.5	269,170.5	279,397.5	287,785.2	285,775.5	291,779.9	314,792.9	350,555.5	341,628.2	347,598.1	358,748.0	359,014.3
Italy	242,556.3	221,714.9	226,793.2	235,987.2	246,383.8	249,357.4	268,606.9	297,877.2	329,613.5	333,650.4	346,807.4	352,822.0	363,478.9	367,591.1	386,576.3	366,419.5	376,658.9	375,552.8	380,970.1
China	25,487.7	25,021.2	26,088.2	28,217.4	32,253.1	35,508.1	37,649.9	42,225.8	47,209.9	56,182.7	56,112.8	58,285.8	66,109.4	75,018.1	83,275.1	85,076.9	91,349.6	102,357.3	110,857.5
South Korea	24,329.0	21,505.6	22,578.5	25,467.8	29,668.0	32,592.0	34,985.4	41,173.1	49,517.6	55,102.8	58,783.4	62,272.0	66,486.4	71,579.3	80,476.6	80,384.6	88,330.5	84,534.9	74,950.9
Taiwan	20,143.6	20,877.8	22,321.2	23,068.7	25,884.6	26,649.5	27,785.7	32,620.4	37,994.9	44,534.7	47,845.9	50,080.6	53,907.0	58,249.4	65,526.2	65,955.1	71,852.8	77,383.3	82,048.9
Singapore	8,932.5	9,284.5	9,956.7	10,459.7	11,960.5	12,134.7	11,624.5	13,723.5	15,305.2	17,128.7	18,993.5	19,597.3	20,684.4	23,665.1	28,115.0	28,008.3	30,322.3	32,452.4	31,985.4
Hong Kong	15,524.5	16,516.3	17,565.3	18,271.5	19,375.9	18,905.5	20,967.4	25,404.7	28,446.9	28,556.3	29,988.7	33,524.2	35,132.0	39,706.6	43,866.0	43,928.1	48,083.5	48,804.4	44,437.2
Argentina	81,881.7	71,649.7	57,684.7	60,879.3	66,448.2	62,385.8	66,827.4	69,295.0	66,600.6	52,217.4	68,317.0	80,081.3	88,933.5	93,015.2	98,168.8	90,110.6	95,529.0	101,756.1	106,539.4
Bolivia	1,059.5	950.2	1,020.3	1,023.4	1,045.8	1,028.3	889.9	832.1	817.0	797.5	786.3	770.9	805.6	883.2	278.8	475.3	519.7	529.5	539.8
Brazil	129,338.4	142,998.4	149,463.5	144,503.1	157,898.0	158,145.6	148,789.3	189,714.9	209,283.5	261,143.5	150,179.8	154,823.2	170,428.6	198,331.5	199,462.7	191,139.4	196,255.6	197,432.1	198,929.9
Chile	6,754.7	7,468.3	6,400.4	5,093.7	5,154.4	5,280.4	5,148.1	5,296.0	5,327.2	8,020.0	8,320.6	8,974.1	10,458.5	12,042.0	13,544.3	14,369.8	15,157.1	16,081.1	16,165.7
Colombia	14,032.9	13,271.1	13,412.7	13,162.8	12,916.2	11,990.7	11,882.3	13,145.7	14,704.2	14,838.1	15,226.6	15,676.5	15,548.3	17,352.3	19,143.5	18,920.6	19,227.2	19,330.2	18,599.3
Costa Rica	1,226.0	971.8	723.1	737.4	882.6	990.0	1,133.5	1,292.2	1,429.9	1,559.4	1,632.8	1,486.1	1,530.3	1,740.4	1,961.4	1,878.2	1,856.6	1,839.9	1,983.7
Ecuador	2,887.7	2,723.7	2,634.3	2,355.1	2,107.5	2,008.4	2,035.8	2,110.0	2,220.3	2,051.0	2,014.7	2,208.8	2,321.8	2,722.5	2,948.3	2,808.9	2,907.7	2,823.9	2,698.3
Honduras	794.3	788.5	740.8	715.4	764.6	797.5	840.3	934.0	1,005.6	1,014.5	936.0	782.8	830.6	898.3	911.8	895.3	881.6	919.0	953.8
Jamaica	938.6	958.9	1,020.8	1,032.5	982.6	893.8	919.6	1,060.4	1,066.3	1,136.6	1,158.3	1,126.3	1,110.2	1,136.0	1,181.0	1,115.3	1,096.9	1,040.5	994.1
Mexico	55,922.4	53,786.8	50,053.2	44,536.0	46,465.0	45,346.3	42,717.7	42,926.0	57,695.5	65,981.4	72,290.3	78,452.8	87,688.0	99,394.3	112,379.5	94,428.0	87,475.3	98,282.2	99,598.1
Panama	1,838.5	2,526.2	2,068.0	2,077.9	2,123.0	2,065.2	1,938.1	1,887.4	1,565.8	1,452.4	1,587.4	1,650.8	2,001.9	2,192.7	2,154.1	2,037.3	2,135.2	2,170.1	2,309.3
Peru	6,665.1	7,142.4	7,541.6	6,469.6	6,838.6	6,341.8	7,081.1	8,700.2	8,836.8	9,760.9	10,158.1	12,104.2	11,501.2	11,271.5	12,382.2	12,868.5	12,952.5	13,546.2	13,047.2
Uruguay	3,925.4	3,443.3	3,049.2	2,565.4	3,545.7	3,493.4	3,327.8	3,121.2	3,691.4	4,280.8	4,568.9	4,381.1	4,611.4	4,844.8	5,374.6	5,028.5	5,282.8	5,356.8	5,378.7
Venezuela	9,847.8	9,251.7	9,443.3	8,897.2	7,798.7	7,619.2	8,729.0	8,716.8	10,143.1	7,758.8	7,593.8	9,134.4	9,965.1	11,239.1	14,362.1	13,556.0	11,816.0	12,664.6	12,466.5
All countries ^a	4,803,549.3	4,566,270.1	4,611,324.7	4,705,693.6	5,046,746.0	5,166,722.2	5,381,780.8	5,939,265.5	6,438,092.6	6,738,244.1	6,751,216.4	6,775,158.0	6,926,571.9	7,262,637.7	7,639,339.1	7,619,286.6	7,963,123.7	8,182,317.3	8,358,476.0

Communications services

Production																			
United States	149,242.9	155,714.2	160,026.6	170,115.8	182,291.5	192,155.8	206,382.0	220,645.6	238,663.8	240,921.8	247,925.4	256,287.2	267,100.8	281,115.9	288,245.0	298,016.3	319,601.1	350,549.7	377,466.6
Canada	12,640.7	13,164.6	13,448.3	13,632.2	14,601.3	15,096.7	15,726.6	16,874.5	18,062.6	18,693.0	19,862.6	20,839.9	21,875.1	21,490.2	22,177.1	23,399.3	25,017.7	26,307.5	27,579.0
Japan	82,707.8	84,608.7	84,482.5	87,325.0	91,653.2	92,344.0	93,473.4	102,093.3	112,816.5	120,680.9	128,338.4	137,162.5	138,143.0	140,679.7	143,286.3	148,158.5	158,540.7	161,894.4	175,159.5
Germany	27,618.2	27,052.4	26,051.8	26,266.0	26,810.9	26,641.2	28,184.5	30,433.6	32,931.5	34,175.7	37,705.6	44,450.9	46,925.7	47,117.7	47,975.6	47,921.0	47,874.9	49,308.2	50,384.8
France	19,244.4	18,848.2	19,468.7	19,797.6	21,092.4	22,285.9	23,417.0	25,358.8	24,793.7	25,860.6	28,193.8	31,875.5	34,505.2	35,877.2	36,339.9	35,976.6	36,720.1	37,408.0	39,386.0
United Kingdom	26,142.3	27,506.2	27,661.9	27,069.0	29,203.3	29,843.5	31,937.1	35,574.5	40,424.3	41,805.4	43,341.0	44,646.9	44,911.0	47,273.0	49,068.6	48,761.6	50,800.5	54,320.2	57,701.4
Italy	12,504.7	13,741.6	13,468.6	14,230.7	15,452.4	16,980.3	18,198.5	20,261.9	21,169.9	21,310.6	22,911.2	26,803.2	30,481.0	31,492.4	33,593.8	34,330.0	35,388.0	37,321.4	39,045.4
China	1,165.4	1,222.6	1,270.6	1,404.7	1,609.1	1,789.4	1,917.1	2,168.1	2,466.5	2,742.2	3,807.8	4,507.9	5,078.9	5,729.0	5,933.6	5,932.2	6,486.2	8,352.4	9,049.0
South Korea	3,182.0	3,544.6	3,751.1	3,887.5	4,049.9	4,011.7	4,186.1	4,657.6	5,225.2	5,465.1	5,936.1	6,704.6	7,347.1	8,160.8	8,780.5	9,697.4	10,717.1	11,395.1	10,772.0
Taiwan	1,935.7	2,070.0	2,139.6	2,317.8	2,689.4	2,775.7	2,957.5	3,364.4	3,819.4	4,214.1	4,603.2	5,116.9	5,819.7	6,458.8	6,886.8	7,274.0	8,087.9	8,726.1	9,288.4
Singapore	1,773.1	1,901.2	1,928.9	2,018.8	2,140.9	2,120.3	2,189.5	2,538.3	2,887.7	3,227.5	3,543.2	3,992.8	4,075.6	4,475.6	4,891.9	5,195.5	5,300.9	5,690.7	5,785.7
Hong Kong	1,524.0	1,679.9	1,834.1	1,989.1	2,087.3	2,140.5	2,02												

Appendix table 6-2.

Production by five knowledge-intensive service industries, for selected countries or economies: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Venezuela	427.7	562.3	689.7	702.1	624.4	664.0	809.1	759.1	770.5	584.0	596.0	869.4	1,376.4	1,762.6	1,769.6	2,109.5	2,525.2	2,809.3	2,899.9
All countries ^a	432,787.5	443,613.8	451,274.1	468,835.4	499,055.0	514,567.2	541,273.8	589,942.1	643,484.9	665,159.8	704,436.2	743,316.5	779,113.3	813,991.5	834,411.1	860,644.5	910,513.4	967,825.5	1,025,206.3
Financial institutions																			
Production																			
United States	628,463.7	495,423.8	505,750.3	551,337.5	668,718.0	720,025.3	784,857.9	953,512.5	1,072,576.3	1,120,432.1	1,093,035.2	1,020,458.5	1,022,080.5	1,089,858.7	1,217,903.1	1,160,525.1	1,269,722.2	1,314,423.7	1,381,780.8
Canada	51,474.3	37,389.0	35,204.0	36,799.0	40,327.3	41,594.0	43,410.4	51,473.4	59,833.0	61,017.3	55,482.1	55,591.6	47,915.3	49,552.9	55,358.5	49,589.4	51,225.3	50,309.5	51,287.9
Japan	120,730.7	91,288.2	94,803.9	96,157.1	109,447.1	109,259.2	114,332.8	140,142.0	165,473.4	176,993.5	169,437.8	159,027.8	157,561.9	161,768.3	184,397.8	167,471.1	172,265.1	164,289.7	153,090.7
Germany	110,112.3	80,455.8	77,885.3	75,285.3	83,921.1	80,047.8	81,710.2	93,716.5	107,334.6	108,367.8	107,583.8	113,174.6	113,985.1	119,622.2	130,089.1	109,878.9	113,147.2	108,837.0	105,882.6
France	78,080.8	58,371.8	59,219.8	55,319.6	63,017.7	62,441.2	73,172.3	92,708.6	103,031.6	103,993.1	96,298.0	89,421.2	95,080.4	103,875.4	132,414.1	117,769.1	125,200.0	131,135.3	123,247.3
United Kingdom	46,515.8	34,407.5	35,603.9	36,629.3	40,464.8	41,525.2	46,985.8	56,385.0	67,290.4	69,267.0	67,585.7	61,667.7	62,156.1	65,234.2	76,209.3	66,222.6	68,354.0	68,262.0	66,397.7
Italy	123,930.5	93,663.8	92,827.2	95,444.6	112,305.1	110,473.8	119,319.4	138,201.7	163,684.4	166,568.2	167,231.5	164,419.9	169,277.4	173,091.0	190,322.4	170,439.6	176,636.1	171,301.2	172,047.8
China	5,730.8	4,484.4	4,684.8	4,965.5	6,211.9	6,631.1	8,064.0	10,693.0	13,613.3	18,974.3	17,500.6	15,980.2	18,197.7	20,748.0	24,868.2	23,962.1	26,096.7	27,619.6	29,686.0
South Korea	13,092.5	9,477.2	9,484.9	10,834.2	13,556.0	14,976.7	16,305.2	20,840.7	27,431.2	30,813.8	32,545.6	33,506.9	35,508.2	38,586.7	45,283.4	42,411.8	47,251.6	52,263.7	45,377.8
Taiwan	5,963.1	4,774.2	5,056.2	5,031.8	6,289.5	6,366.5	6,641.8	8,866.9	11,668.6	14,834.9	15,262.4	14,896.1	16,172.9	17,764.9	22,273.9	20,646.2	22,749.9	24,585.5	26,029.6
Singapore	4,555.7	4,259.6	4,642.3	4,828.9	5,885.6	5,971.0	5,450.0	6,709.1	7,830.9	8,718.4	9,518.1	9,269.0	9,791.8	11,475.7	14,439.8	13,446.4	14,951.3	15,773.4	15,216.7
Hong Kong	8,656.9	7,967.7	8,216.9	7,925.4	8,692.8	7,857.6	9,063.4	12,121.9	13,645.9	13,911.1	14,349.5	17,147.3	17,976.7	20,041.4	22,521.7	20,402.7	23,032.5	22,827.0	20,440.9
Argentina	13,470.7	9,840.3	8,924.9	9,077.2	9,567.9	9,144.9	9,762.2	11,851.2	13,227.9	9,977.6	10,848.1	11,251.8	12,919.1	14,043.7	16,149.8	13,179.0	14,518.5	15,002.4	15,975.6
Bolivia	299.8	215.7	201.5	157.4	204.3	209.6	138.7	173.1	220.0	210.1	193.3	183.8	185.6	219.3	53.0	131.9	152.1	150.0	153.6
Brazil	37,072.2	27,291.7	30,456.5	32,568.2	37,216.7	37,287.7	30,763.8	53,500.8	65,283.6	89,169.3	36,597.7	35,942.5	40,190.6	44,770.2	44,505.3	35,595.2	37,202.4	36,262.4	36,541.2
Chile	2,145.3	1,889.2	1,713.5	1,225.8	1,271.1	1,368.1	1,320.5	1,475.6	1,564.1	2,144.6	2,077.0	1,959.1	2,203.6	2,543.5	3,048.6	2,873.4	3,085.8	3,166.2	3,171.4
Colombia	6,715.9	5,456.5	5,512.2	5,287.3	5,243.7	4,824.2	4,837.7	5,807.0	7,255.2	7,148.1	7,254.9	7,070.6	7,111.7	7,507.1	8,726.1	7,995.3	8,195.8	8,004.0	7,531.8
Costa Rica	582.4	416.9	354.4	373.8	441.3	476.0	589.4	706.7	824.2	901.8	921.5	763.5	757.6	880.0	1,048.5	946.8	946.5	918.6	1,001.1
Ecuador	1,093.4	808.3	806.0	720.3	600.3	539.9	559.0	752.1	964.4	636.4	595.4	644.9	674.5	889.1	1,000.5	873.4	918.7	867.6	809.7
Honduras	143.0	107.1	102.1	105.3	129.2	133.2	136.6	161.1	193.8	204.5	175.9	146.9	152.0	165.5	190.0	170.1	171.4	179.8	190.3
Jamaica	364.2	315.8	345.6	412.1	377.2	322.0	416.7	524.4	547.0	573.0	563.8	524.4	508.7	523.9	570.8	502.2	498.9	461.3	432.4
Mexico	28,761.8	23,833.3	21,554.2	18,057.0	20,245.0	19,242.2	18,495.6	19,784.6	27,926.3	33,831.7	36,838.6	37,050.4	39,567.2	46,291.8	52,956.2	48,842.2	37,351.8	47,100.5	46,994.6
Panama	1,082.2	1,564.3	1,179.4	1,174.6	1,184.0	1,111.0	956.2	904.0	632.1	530.2	591.3	615.7	860.9	978.1	910.3	791.8	846.6	836.0	892.5
Peru	2,221.9	2,238.0	2,140.0	1,847.8	2,225.6	2,178.7	2,226.9	2,762.6	3,051.8	1,180.7	2,239.1	1,884.9	1,197.7	1,143.6	1,678.4	2,215.1	2,270.3	2,304.1	2,180.0
Uruguay	2,196.8	1,681.9	1,495.7	1,245.7	1,833.8	1,693.8	1,530.9	1,466.0	1,914.6	2,252.8	2,181.0	1,895.8	2,041.8	2,172.4	2,531.7	2,205.8	2,347.8	2,330.4	2,292.6
Venezuela	5,811.6	4,836.0	4,571.9	4,193.2	2,379.3	2,259.7	2,520.4	3,056.0	4,134.3	2,925.9	2,777.9	2,994.2	2,651.1	3,189.6	6,366.4	4,598.3	3,632.1	3,773.9	3,629.8
All countries ^a	1,508,977.7	1,165,666.0	1,178,940.7	1,220,075.8	1,430,318.2	1,470,830.4	1,574,374.2	1,921,070.1	2,216,768.7	2,328,666.1	2,234,292.1	2,134,240.0	2,147,585.2	2,296,226.0	2,572,228.2	2,370,929.0	2,525,069.3	2,571,661.4	2,612,986.7
Business services																			
Production																			
United States	468,218.0	477,958.9	471,848.0	472,336.7	527,088.2	539,860.9	529,167.9	549,514.1	594,188.3	629,268.4	625,914.5	632,201.8	652,525.3	671,105.0	685,248.2	724,272.8	730,674.0	769,621.8	828,536.4
Canada	13,526.7	14,517.9	16,329.4	14,847.0	16,609.5	17,012.2	18,008.3	19,181.6	20,540.6	22,635.7	24,070.8	25,009.3	29,862.4	30,830.0	31,509.8	32,446.3	32,572.2	32,986.8	33,829.4
Japan	172,640.9	175,552.3	180,534.7	187,788.2	194,909.3	203,086.9	217,791.3	239,728.6	248,664.4	271,816.1	276,007.1	281,372.2	283,471.3	289,944.3	302,366.8	315,669.1	315,555.5	310,324.9	297,749.2
Germany	38,020.3	37,359.7	35,813.9	35,501.9	36,087.2	35,927.6	37,583.8	38,709.9	39,847.5	40,185.8	42,316.6	48,351.6	53,272.5	63,631.1	69,419.3	78,464.6	85,592.7	84,898.0	83,681.6
France	103,005.7	105,115.5	103,893.2	103,711.5	107,019.1	109,606.9	117,572.2	133,156.2	147,635.7	172,096.7	199,135.1	212,672.5	229,803.2	272,211.7	258,156.4	303,274.5	353,551.8	393,194.7	394,619.1
United Kingdom	74,571.6	74,180.8	76,011.4	80,197.8	80,789.0	86,533.3	100,342.3	108,134.0	113,366.8	119,259.0	123,427.6	122,324.3	125,368.6	131,082.2	140,098.4	139,941.1	140,375.0	144,554.9	140,553.1
Italy	52,774.0	53,638.9	52,641.2	55,507.9	59,558.5	61,150.4	67,685.7	70,401.4	73,250.2	76,177.4	81,123.0	86,632.0	90,692.8	92,387.2	92,936.1	96,355.0	96,356.9	97,348.4	
China	2,169.2	2,282.8	2,361.5	2,566.9	2,928.3	3,262.6	4,066.1	4,841.9	5,415.2	7,713.4	7,546.2	7,484.3	8,666.4	9,843.8	10,794.1	11,955.9	12,654.0	13,809.8	15,695.4
South Korea	2,979.6	2,906.0	2,874.6	3,367.4	3,842.2	4,430.6	4,943.3	5,673.9	6,560.7	7,551.5	8,437.6	9,435.4	10,167.3	11,007.2	11,817.8	12,723.2	13,775.7	13,761.1	13,359.5
Taiwan	2,179.3	2,346.5	2,466.7	2,511.5	2,862.6	3,024.5	3,233.6	3,877.8	4,481.6	5,822.7	6,354.2	6,736.0	7,436.5	8,229.4	9,334.7	9,946.2	10,650.8	11,868.9	12,723.1
Singapore	1,665.0	2,093.6	2,259.4	2,410.3	2,678.8	2,836.6	2,653.3	2,932.3	3,007.6	3,422.0	3,962.7	4,191.4	4,502.4	5,256.9	6,051.5	6,477.7	6,999.7	7,614.8	7,685.2
Hong Kong	2,223.3	2,962.1	3,060.1	3,432.2	3,529.														

Appendix table 6-2.

Production by five knowledge-intensive service industries, for selected countries or economies: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Peru	2,249.2	2,453.9	2,862.9	2,229.8	2,144.3	1,712.3	2,058.8	2,389.5	2,568.4	4,103.7	3,775.9	3,849.7	4,087.4	4,144.1	4,147.6	4,054.9	4,054.9	4,235.4	4,003.0
Uruguay	467.0	480.9	423.5	361.7	775.4	777.6	682.1	478.4	633.6	795.8	1,079.9	955.7	943.8	1,000.4	1,066.6	1,068.2	1,104.9	1,130.9	1,149.3
Venezuela	2,592.5	2,784.4	3,028.7	2,817.2	2,986.2	2,907.8	3,453.0	3,080.3	3,390.6	2,882.1	2,849.6	3,764.9	4,251.6	4,436.3	4,301.5	4,645.3	3,565.8	3,820.4	3,700.5
All countries ^a	1,149,250.8	1,169,250.6	1,174,204.7	1,191,912.8	1,271,011.2	1,318,013.4	1,364,756.8	1,462,993.0	1,555,176.9	1,684,728.0	1,698,247.7	1,752,852.4	1,825,900.2	1,934,554.9	1,977,928.1	2,098,596.6	2,182,669.9	2,253,539.9	2,302,150.0
Educational services																			
Production																			
United States	69,966.9	71,350.3	74,218.2	76,472.8	78,257.1	80,696.6	83,044.2	86,009.5	90,558.0	94,893.9	98,025.6	99,742.1	102,186.2	103,679.8	106,422.1	108,144.1	110,027.2	111,430.2	115,493.4
Canada	33,502.0	33,362.0	33,994.4	33,580.0	33,432.0	33,236.3	33,447.9	33,751.3	34,324.2	35,228.7	36,763.7	38,554.1	39,567.4	39,960.3	39,645.5	40,090.5	40,108.6	40,799.9	41,629.0
Japan	28,552.2	29,658.9	31,394.5	32,961.4	34,228.3	36,100.9	38,032.5	39,342.8	40,441.0	42,341.5	44,529.3	46,848.8	48,462.6	48,720.1	49,268.2	50,442.9	52,424.6	51,785.0	49,282.9
Germany	44,484.5	43,447.9	42,988.6	43,191.3	42,972.4	43,043.0	43,922.5	44,166.7	44,462.8	44,893.8	47,041.9	49,168.5	52,750.2	54,259.6	54,825.6	54,673.0	54,179.4	53,978.6	54,709.0
France	19,699.0	20,335.2	21,351.5	22,203.6	22,384.0	22,890.8	24,070.2	24,967.2	26,037.6	27,102.4	28,282.9	29,512.1	28,506.5	28,404.4	28,390.6	28,320.3	28,083.2	27,741.8	28,211.2
United Kingdom	12,753.9	11,923.1	10,798.4	10,414.9	10,006.7	11,003.5	10,531.0	10,289.1	11,264.3	11,744.9	13,091.7	14,247.5	15,081.1	18,345.6	22,112.1	22,471.0	22,613.1	23,390.0	23,853.7
Italy	12,176.1	13,905.6	15,764.6	16,793.6	14,168.3	14,743.1	15,666.7	17,104.8	17,926.9	17,820.5	19,790.0	19,979.1	19,826.1	19,431.8	19,330.6	18,259.6	18,724.9	19,247.2	19,650.5
China	9,470.2	9,844.0	10,347.9	11,353.1	12,739.1	14,202.4	14,205.4	14,783.2	15,595.1	16,405.1	16,913.5	18,975.2	21,589.1	24,618.0	26,615.4	27,578.8	29,286.0	33,297.8	35,508.5
South Korea	3,105.9	3,424.0	3,993.6	4,602.9	5,168.7	5,786.9	6,078.2	6,374.0	6,601.1	7,310.3	7,763.3	8,327.6	8,957.1	9,253.8	9,803.2	10,437.6	11,085.3	11,426.7	10,221.3
Taiwan	1,019.2	1,189.2	1,307.3	1,398.8	1,507.0	1,574.5	1,661.7	1,841.3	2,037.7	2,279.4	2,576.0	2,836.8	3,043.0	3,239.3	3,446.2	3,573.5	3,820.8	4,025.4	4,096.8
Singapore	95.1	104.8	116.3	127.3	134.7	131.3	148.0	172.1	178.5	204.1	234.6	260.7	287.8	310.4	348.3	367.5	386.4	421.7	397.4
Hong Kong	315.9	397.5	460.4	521.6	543.7	578.9	558.5	589.3	597.5	590.2	563.3	579.2	701.0	762.5	860.0	894.0	917.7	819.6	819.6
Argentina	26,914.6	23,980.5	18,608.2	20,164.1	22,830.6	21,204.6	22,951.4	22,750.4	20,769.3	16,767.7	24,009.5	29,547.1	32,681.6	33,932.4	35,289.6	33,032.3	34,428.3	36,848.8	38,038.6
Bolivia	216.7	209.8	258.7	314.5	283.2	261.8	273.7	208.1	158.3	155.1	154.1	147.8	151.9	160.5	63.1	74.4	54.7	55.8	57.1
Brazil	27,433.6	40,799.1	40,550.5	36,815.0	40,402.1	40,066.6	41,647.0	42,512.7	44,724.0	49,696.0	40,280.7	42,603.0	46,446.0	56,588.4	59,614.2	61,421.2	62,329.6	62,926.9	63,411.6
Chile	1,222.1	1,528.8	1,245.6	1,077.1	1,092.4	1,046.1	998.5	973.5	961.0	1,773.3	1,841.2	2,016.7	2,382.8	2,704.9	3,065.8	3,507.6	3,648.2	3,877.1	3,906.1
Colombia	1,765.5	1,880.6	1,918.3	1,946.0	1,904.2	1,771.8	1,741.6	1,823.2	1,806.1	1,872.4	1,925.8	2,097.9	2,396.7	2,499.7	2,646.7	2,751.9	2,744.3	2,790.2	2,726.6
Costa Rica	164.3	146.8	116.0	131.9	158.6	181.3	194.9	209.0	216.9	238.6	260.3	270.9	293.8	327.7	348.6	353.0	341.8	343.6	365.4
Ecuador	421.5	457.6	453.0	428.4	376.1	379.6	378.1	377.8	362.6	386.1	380.7	442.5	503.8	526.3	518.6	528.3	516.8	500.6	
Honduras	241.2	254.5	241.0	229.7	237.3	249.7	267.9	296.3	311.9	307.5	295.5	240.8	259.8	286.0	278.8	280.6	273.7	277.3	284.8
Jamaica	54.0	61.5	64.3	67.2	56.8	46.0	44.0	46.2	49.4	56.6	58.9	58.2	57.6	57.5	57.0	56.7	54.5	52.2	50.2
Mexico	11,804.0	13,053.9	12,594.2	11,838.6	11,718.9	11,777.0	10,951.2	10,378.5	13,061.3	14,243.7	14,597.1	16,252.9	19,077.5	23,110.7	25,607.7	21,000.0	20,082.5	21,583.5	22,133.8
Panama	70.3	68.4	66.9	71.8	73.1	72.7	77.3	79.2	69.2	68.2	72.1	74.8	78.7	79.5	80.7	80.6	79.7	81.5	84.9
Peru	303.4	347.2	410.0	393.6	472.9	487.5	582.5	806.7	847.7	1,544.7	1,485.7	3,110.2	3,111.7	3,039.7	3,342.9	3,345.2	3,331.0	3,496.1	3,413.8
Uruguay	176.6	179.7	160.8	188.6	171.1	225.4	256.8	280.6	270.4	313.6	366.8	492.3	526.4	542.7	578.3	569.7	586.6	600.0	602.8
Venezuela	891.1	943.9	1,016.7	1,042.9	429.6	412.9	417.5	346.1	340.4	236.1	277.9	318.1	333.5	356.1	358.6	426.1	400.7	430.2	423.9
All countries ^a	422,888.7	445,355.1	453,709.4	461,608.5	472,907.1	478,673.0	492,622.7	503,260.8	520,965.2	540,862.9	556,047.6	550,623.9	561,065.0	590,597.5	609,633.8	610,990.1	619,880.9	632,329.1	639,342.9
Health services																			
Production																			
United States	491,448.0	517,468.5	527,053.8	539,579.1	548,350.2	559,782.8	572,346.5	604,063.0	632,816.7	646,692.9	671,438.8	686,289.4	705,106.4	704,553.5	706,495.0	726,888.8	740,608.0	755,773.5	781,721.2
Canada	25,520.2	27,099.3	28,297.7	28,733.7	29,374.2	29,900.2	30,376.1	31,727.1	32,331.9	32,756.0	34,196.7	35,377.6	35,483.4	34,304.8	34,545.8	35,020.7	35,479.6	36,366.4	37,029.2
Japan	253,425.8	261,828.5	272,312.2	278,271.4	284,732.9	295,738.9	304,200.2	313,405.2	317,297.9	322,913.1	329,297.5	338,467.1	341,369.3	336,869.6	337,151.4	346,049.9	364,193.7	362,495.2	343,781.4
Germany	112,810.9	109,587.8	106,536.8	104,181.6	102,134.8	100,745.5	100,374.6	100,523.5	99,672.7	97,822.3	99,393.7	101,493.3	106,163.1	107,200.7	107,194.7	107,162.7	107,538.5	107,957.1	110,204.9
France	20,546.2	20,712.7	20,709.9	20,968.9	20,756.7	20,767.7	21,441.0	22,278.7	22,752.0	22,940.6	23,081.4	22,989.8	23,760.4	23,629.4	23,372.8	23,373.1	23,470.5	23,362.0	23,530.4
United Kingdom	47,167.3	43,857.0	39,026.8	36,636.0	34,684.0	37,558.7	35,096.3	34,151.1	36,824.6	37,321.3	40,339.2	42,889.1	44,263.0	52,857.9	63,048.9	64,231.9	65,455.4	68,220.9	70,508.5
Italy	41,170.9	46,765.1	52,091.6	54,014.0	44,899.5	46,009.8	47,736.6	51,907.5	53,582.2	51,773.7	55,751.8	54,987.7	53,201.6	51,188.6	50,393.5	47,720.1	49,554.9	51,325.9	52,878.0
China	6,952.0	7,187.4	7,423.4	7,927.2	8,764.6	9,622.6	9,397.2	9,739.8	10,119.9	10,347.6	10,344.7	11,338.2	12,577.4	14,079.3	15,063.7	15,647.9	16,826.7	19,277.7	20,918.6
South Korea	1,969.1	2,159.1	2,474.3	2,757.7	3,071.2	3,386.2	3,472.6	3,626.8	3,699.4	3,982.2	4,100.7	4,297.4	4,506.7	4,570.7	4,791.8	5,114.6	5,500.7	5,713.3	5,220.4
Taiwan	9,046.3	10,497.9	11,339.4	11,808.9	12,536.2	12,905.7	13,291.1	14,667.4	15,987.6	17,383.6	19,050.1	20,494.8	21,434.8	22,362.4	23,582.8	24,515.2	26,543.4	28,177.5	29,911.1
Singapore	843.7	925.3	1,008.9	1,074.4	1,120.5	1,075.5	1,183.6	1,370.9	1,400.5	1,556.7	1,734.9	1,883.4	2,027.0	2,					

Appendix table 6-2.

Production by five knowledge-intensive service industries, for selected countries or economies: 1980–98
 (Millions of 1997 U.S. dollars)

Country/economy	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Mexico	13,142.2	14,455.4	13,702.9	12,536.9	12,228.3	12,101.9	10,987.4	10,370.6	12,854.7	13,364.4	14,693.8	15,788.1	17,153.1	17,719.8	17,815.4	14,743.1	13,564.3	14,689.3	15,032.9
Panama	245.5	253.3	245.8	240.1	257.3	254.6	251.4	251.3	260.5	264.7	251.4	234.5	242.5	245.7	244.5	244.6	245.1	252.6	262.4
Peru	1,068.9	1,220.2	1,266.3	1,235.3	1,180.0	1,092.2	1,370.4	1,817.1	1,455.0	2,165.3	1,881.0	2,517.0	2,325.4	2,176.7	2,334.3	2,384.9	2,404.8	2,543.3	2,478.3
Uruguay	856.1	865.9	761.3	638.8	580.2	602.2	647.5	677.7	644.1	653.3	647.0	717.5	748.1	757.1	798.5	788.5	822.2	847.4	860.9
Venezuela	124.8	125.0	136.4	141.7	1,379.1	1,374.8	1,529.0	1,477.1	1,507.3	1,130.7	1,092.3	1,187.9	1,352.5	1,494.5	1,565.9	1,776.8	1,692.2	1,830.8	1,812.4
All countries ^a	1,289,644.6	1,342,384.7	1,353,195.8	1,363,261.0	1,373,454.4	1,384,638.1	1,408,753.2	1,461,999.5	1,501,696.9	1,518,827.3	1,558,192.7	1,594,125.2	1,612,908.2	1,627,267.7	1,645,137.9	1,678,126.5	1,724,990.2	1,756,961.4	1,778,790.1

^aA total of 68 countries or economies are included. Refer to country list (See appendix table 6-1).

SOURCE: WEFA/ICF World Industry Service, WEFA Group, database (Eddystone, PA, 2000).

Appendix table 6-3.
U.S. trade balance for advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All technologies										
Total	35,346.4	38,389.4	35,219.8	27,123.6	22,626.8	13,629.5	24,547.6	32,032.1	29,879.3	19,361.5
NAFTA partners, total	5,617.3	5,534.7	6,639.8	7,150.0	8,081.4	7,962.2	8,206.2	8,718.5	8,157.5	8,068.0
Canada	4,510.9	4,093.0	4,807.6	5,291.4	5,831.5	7,299.4	7,239.3	7,280.2	6,127.8	6,607.7
Mexico	1,106.4	1,441.7	1,832.2	1,858.5	2,249.9	662.8	966.9	1,438.4	2,029.6	1,460.2
Europe four, total	15,169.4	14,873.9	12,168.8	10,201.9	11,562.2	11,212.5	10,617.2	11,695.0	11,238.2	11,519.0
France	2,332.4	2,610.6	1,511.4	840.1	1,099.8	1,221.9	1,034.3	791.2	296.8	982.7
Germany	5,119.8	5,754.5	4,682.3	3,604.8	3,442.8	3,769.3	3,913.6	2,753.3	2,685.2	2,502.6
Italy	1,507.1	1,752.1	1,880.9	955.0	1,340.7	1,302.8	1,195.4	1,137.9	872.0	1,442.7
United Kingdom	6,210.2	4,756.6	4,094.3	4,802.0	5,678.8	4,918.5	4,473.8	7,012.5	7,384.2	6,591.1
Other western Europe, total	7,882.9	8,234.8	6,800.9	5,596.6	7,628.8	7,762.4	8,364.3	8,395.3	7,419.2	7,891.2
Belgium	1,177.3	1,337.7	982.2	834.7	989.8	728.9	868.1	842.9	1,393.5	758.4
Greece	87.0	309.7	152.3	206.5	138.0	665.3	171.3	251.6	667.1	376.3
Ireland	764.3	600.8	606.2	246.1	902.1	349.8	84.4	-739.2	-1,899.7	-2,011.4
Netherlands	3,389.0	2,862.7	2,463.6	2,705.9	3,442.7	4,219.1	4,288.9	6,212.2	5,797.6	6,528.0
Portugal	217.6	157.2	332.4	107.7	428.5	162.9	166.8	189.5	179.8	270.3
Spain	1,500.1	1,334.7	1,277.9	847.6	987.2	1,049.1	1,046.0	855.5	680.3	1,712.7
Switzerland	747.6	1,632.0	986.4	648.0	740.5	587.4	1,738.8	782.9	600.6	257.0
Nordic countries, total	2,343.8	2,491.7	1,746.8	1,308.6	1,235.0	1,450.5	2,767.0	1,752.9	2,485.0	2,523.4
Denmark	450.2	582.9	487.7	233.2	270.1	422.8	508.6	374.4	559.5	435.4
Finland	381.1	303.8	163.9	225.4	241.8	268.5	1,331.5	431.8	683.6	489.5
Iceland	147.2	55.6	22.3	7.0	13.4	41.7	85.7	19.6	83.5	86.6
Norway	454.3	563.9	426.6	358.8	296.9	220.6	354.1	399.3	363.2	287.1
Sweden	911.0	985.5	646.2	484.2	412.9	497.0	487.1	527.8	795.2	1,224.8
Central/eastern Europe, total	364.1	531.6	1,063.4	1,094.5	997.7	743.6	398.1	819.6	863.4	-202.4
Austria	220.8	297.1	367.4	279.5	177.8	269.8	142.0	300.9	263.0	314.6
Czech Republic	0.0	0.0	0.0	93.7	88.5	94.0	78.0	231.1	187.3	198.1
Czechoslovakia	17.7	37.1	243.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	18.6	124.3	130.0	237.1	91.1	36.6	-75.7	-308.9	-715.4	-1,037.9
Poland	107.0	72.9	199.2	249.1	177.6	182.8	142.8	381.3	134.3	220.6
Russia	0.0	0.0	115.3	203.1	437.3	141.2	64.6	161.5	905.1	1.2
Slovakia	0.0	0.0	0.0	8.7	14.0	13.0	22.6	34.5	59.4	73.8
Slovenia	0.0	0.0	8.5	23.3	11.4	6.2	23.9	19.1	29.8	27.2
Asia, total	-7,256.7	-5,198.1	-7,403.0	-12,190.7	-20,241.5	-29,411.7	-22,593.7	-21,228.3	-25,351.5	-33,845.4
China	1,079.2	1,351.4	2,254.8	2,293.9	759.0	-985.6	-661.5	-1,129.7	-69.4	-3,209.8
Hong Kong	701.0	1,156.9	1,372.0	1,436.6	1,833.1	2,559.2	2,930.9	3,026.1	2,950.3	3,447.4
India	267.7	199.6	194.9	676.6	446.0	458.9	758.5	539.5	824.1	818.3
Indonesia	509.8	157.6	378.4	565.7	71.1	-179.2	104.3	267.3	-438.4	-768.9
Japan	-7,235.1	-7,434.1	-8,854.7	-12,808.5	-14,312.9	-15,533.2	-10,350.8	-10,461.6	-9,566.2	-11,986.7
Malaysia	468.4	260.9	-483.1	-865.6	-2,381.7	-4,150.4	-4,703.1	-3,516.3	-5,047.0	-7,262.2
Philippines	264.7	-3.0	-132.0	100.3	-41.0	-220.9	-487.3	-1033.5	-2248.6	-2188.2
Singapore	-2,464.0	-2,175.7	-3,234.7	-3,236.3	-4,527.5	-6,066.2	-7,109.4	-6,245.6	-5,745.2	-5,435.9
South Korea	-172.7	714.9	524.2	-26.4	-452.9	-2,720.0	-51.4	28.1	-1,894.9	-2,071.0
Taiwan	-833.0	82.8	244.0	113.9	-966.2	-2,323.6	-3,053.0	-2,609.4	-3,231.8	-4,358.5
Thailand	157.4	490.7	333.1	-440.9	-668.5	-250.8	29.1	-93.0	-884.3	-830.0
South America, total	1,817.8	2,594.2	2,880.7	2,677.7	3,082.2	3,879.4	4,795.7	6,269.1	6,236.8	5,940.8
Argentina	288.8	403.6	760.4	840.0	1,028.1	807.2	839.1	1,214.6	1,342.1	1,601.8
Brazil	1,169.1	1,821.8	1,615.4	1,445.8	1,583.3	2,359.8	3,027.7	3,937.0	3,528.5	3,212.8
Chile	292.9	306.6	433.0	306.9	344.2	507.1	728.6	780.6	1,032.6	847.5
Peru	66.9	62.2	71.9	85.0	126.7	205.3	200.4	336.9	333.5	278.6
Africa, total	489.7	716.9	583.8	684.5	470.4	565.9	566.4	715.7	1,319.7	618.7
Kenya	11.1	12.3	9.9	13.4	16.9	12.9	16.4	99.2	56.8	55.8
Nigeria	76.0	49.2	50.7	55.3	33.3	27.8	26.3	26.2	38.4	37.0
South Africa	402.5	655.4	523.2	615.8	420.2	525.2	523.6	590.3	1,224.5	526.0
All other countries	8,918.2	8,609.7	10,738.5	10,600.5	9,810.6	9,464.6	11,426.3	14,894.2	17,510.9	16,848.3
Biotechnology										
Total	629.1	657.3	697.0	833.5	956.0	610.7	648.6	653.7	721.1	587.8
NAFTA partners, total	68.3	83.0	97.9	125.0	143.0	110.2	123.1	150.5	171.6	145.7
Canada	70.0	84.0	97.4	119.1	133.2	100.2	104.2	115.1	149.9	133.9
Mexico	-1.7	-1.0	0.5	6.0	9.8	10.0	19.0	35.4	21.7	11.8
Europe four, total	133.9	123.1	142.8	188.6	186.5	136.6	183.5	184.0	64.0	-7.3
France	15.3	12.4	12.9	16.9	22.9	-8.0	-7.3	-37.3	-55.6	-84.4
Germany	84.8	63.8	69.5	86.5	104.6	128.0	148.3	162.7	83.9	65.9
Italy	15.7	26.6	21.7	27.5	19.2	8.6	0.1	1.3	10.4	10.0
United Kingdom	18.1	20.3	38.7	57.8	39.8	8.1	42.4	57.2	25.3	1.2
Other western Europe, total	141.5	167.3	165.1	229.3	267.1	52.7	33.5	-98.8	81.2	-80.3
Belgium	27.3	32.4	43.1	89.9	118.2	-25.1	24.9	-7.0	126.8	69.7
Greece	1.0	1.7	1.6	2.7	3.0	2.6	2.8	6.3	1.0	1.2
Ireland	48.2	78.3	57.4	78.1	93.8	79.0	30.1	49.5	-45.2	-50.7
Netherlands	27.5	27.3	38.6	41.3	25.8	10.5	9.7	3.7	37.0	-28.7
Portugal	0.3	0.2	0.3	0.3	0.9	0.5	0.6	0.2	0.2	0.3
Spain	20.9	21.9	23.9	29.4	33.9	10.0	18.9	26.0	45.6	15.9
Switzerland	16.2	5.5	0.1	-12.4	-8.6	-24.8	-53.6	-177.5	-84.2	-88.1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-3.

U.S. trade balance for advanced technology products: 1990–99
 (Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nordic countries, total	33.9	32.5	34.4	41.0	30.0	23.3	14.0	12.2	10.7	5.4
Denmark	3.3	4.2	4.5	2.1	1.6	3.4	7.5	1.5	0.8	-1.1
Finland	17.5	16.8	16.2	25.1	20.1	13.6	2.3	0.9	0.5	0.8
Iceland	0.1	0.2	0.3	0.2	0.0	0.0	0.2	0.2	0.1	0.2
Norway	0.7	2.0	3.3	5.3	4.2	3.1	1.3	6.8	6.4	4.1
Sweden	12.3	9.3	10.0	8.4	4.1	3.1	2.6	2.9	2.8	1.5
Central/eastern Europe, total	3.0	3.7	8.6	9.2	-4.9	-7.9	0.9	6.2	1.1	8.6
Austria	2.8	2.7	4.6	7.8	4.2	10.5	14.2	9.4	8.0	10.0
Czech Republic	0.0	0.0	0.0	0.0	0.9	0.4	0.6	5.1	1.5	2.2
Czechoslovakia	0.0	0.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.0	-0.5	0.0	0.3	-0.6	-2.9	-7.2	-4.9	-6.9	-4.7
Poland	0.2	0.7	1.8	0.6	5.7	9.1	9.9	2.5	2.2	4.4
Russia	0.0	0.0	0.6	0.3	1.5	0.8	0.9	0.5	1.0	2.6
Slovakia	0.0	0.0	0.0	0.0	0.0	-0.2	-0.1	0.3	0.6	0.1
Slovenia	0.0	0.0	0.0	0.1	-16.7	-25.7	-17.3	-6.7	-5.2	-6.1
Asia, total	205.7	202.0	190.3	171.3	238.0	209.0	181.8	261.9	251.9	318.8
China	0.5	1.4	2.3	1.5	1.3	0.6	-7.9	-8.6	-5.6	-8.7
Hong Kong	3.8	4.1	4.4	4.1	9.6	6.6	7.8	17.0	9.3	8.2
India	0.6	0.6	1.2	0.7	1.5	1.8	1.5	2.9	4.6	4.3
Indonesia	1.5	2.4	2.1	2.6	3.4	4.1	4.2	4.5	0.7	2.5
Japan	177.2	174.7	152.3	138.3	188.6	151.5	128.0	190.2	194.3	244.3
Malaysia	1.2	1.1	1.9	2.5	2.7	3.0	2.6	4.2	3.1	3.9
Philippines	1.4	1.5	1.7	1.9	2.8	2.8	3.6	4.4	4.0	4.2
Singapore	1.6	2.0	2.0	1.9	3.2	3.6	3.6	3.4	4.1	3.7
South Korea	3.4	2.5	3.7	3.4	5.3	11.9	12.8	12.1	12.6	18.4
Taiwan	6.7	7.6	14.0	9.9	14.1	17.0	19.1	23.7	17.9	29.0
Thailand	7.8	4.0	4.8	4.6	5.5	6.1	6.5	8.1	6.9	9.0
South America, total	6.9	9.0	14.5	19.2	36.0	25.4	35.2	42.3	42.9	61.5
Argentina	2.3	4.8	8.8	10.1	14.5	7.0	8.5	8.1	13.2	7.3
Brazil	1.7	1.4	2.5	4.5	15.7	12.9	22.2	25.2	19.9	45.6
Chile	1.3	1.1	1.3	2.5	2.8	2.0	1.6	5.4	6.2	3.8
Peru	1.7	1.7	1.8	2.1	2.9	3.6	2.9	3.6	3.5	4.8
Africa, total	3.3	3.1	2.6	3.5	3.7	4.2	4.9	5.0	4.2	3.1
Kenya	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.0	0.0
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2
South Africa	3.3	3.0	2.6	3.4	3.6	4.1	4.8	4.7	4.0	2.8
All other countries	32.7	33.5	40.8	46.3	56.6	57.1	71.7	90.4	93.4	132.3

Life science technologies

Total	1,631.5	1,038.5	959.7	1,414.1	1,976.9	1,961.1	1,357.6	153.5	-2,252.5	-4,331.3
NAFTA partners, total	540.7	410.9	341.6	513.3	589.5	456.1	391.0	137.1	170.5	330.3
Canada	501.7	407.5	391.0	401.2	487.6	556.3	536.5	320.1	378.2	561.4
Mexico	39.0	3.4	-49.4	112.1	101.8	-100.1	-145.5	-183.0	-207.6	-231.1
Europe four, total	162.3	-251.2	-252.3	-231.3	-66.9	-195.0	-661.1	-1,357.8	-2,807.5	-3,359.6
France	67.2	37.0	126.7	80.9	62.3	170.3	40.3	61.1	103.6	130.7
Germany	-140.0	-362.6	-407.8	-211.6	-48.7	-219.7	-228.5	-1,065.5	-2,293.4	-2,370.9
Italy	176.5	169.1	180.1	107.6	94.0	142.8	96.0	92.3	27.6	-80.9
United Kingdom	58.7	-94.6	-151.3	-208.1	-174.5	-288.4	-569.0	-445.7	-645.3	-1,038.6
Other western Europe, total	261.9	255.7	229.5	111.4	231.5	50.6	-365.4	-974.6	-1,394.6	-2,644.0
Belgium	81.4	124.0	138.1	166.2	202.7	140.5	71.0	2.9	176.5	-72.7
Greece	11.0	18.8	19.1	21.5	16.6	29.5	23.4	28.6	31.7	39.7
Ireland	-15.5	-48.5	-59.5	-102.4	-71.9	-215.7	-480.4	-1,173.2	-2,046.1	-2,916.6
Netherlands	82.4	91.4	77.2	16.4	85.4	186.9	195.4	359.4	559.6	433.9
Portugal	9.3	12.5	15.5	13.0	15.1	35.4	32.7	28.6	39.3	34.2
Spain	70.8	75.5	75.0	63.0	67.1	94.7	111.4	107.6	135.4	173.3
Switzerland	22.5	-18.1	-35.9	-66.1	-83.6	-220.7	-318.8	-328.4	-290.9	-335.8
Nordic countries, total	62.2	54.9	61.5	37.3	36.6	-31.5	-15.5	-18.1	-11.4	-100.1
Denmark	0.2	-1.5	-2.4	-4.0	-12.3	-3.9	-22.3	-60.9	-59.5	-125.0
Finland	3.4	-13.8	-21.2	-14.3	-26.6	-43.1	-36.6	-47.9	-55.1	-38.5
Iceland	0.8	1.6	-0.2	0.2	0.4	1.0	0.6	0.6	-3.3	-4.3
Norway	22.3	19.0	16.7	19.0	14.7	15.5	19.2	12.3	11.9	-0.3
Sweden	35.5	49.6	68.7	36.3	60.5	-0.8	23.8	77.8	94.6	68.2
Central/eastern Europe, total	41.5	38.5	56.4	22.9	-58.7	-177.2	-94.7	-28.9	55.7	29.2
Austria	27.6	21.0	35.7	29.3	29.5	8.9	3.0	-16.6	-7.9	-22.9
Czech Republic	0.0	0.0	0.0	6.9	9.8	11.2	10.8	9.0	7.7	8.0
Czechoslovakia	5.6	4.4	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	1.1	5.3	2.3	-0.6	3.2	0.9	2.6	2.5	-5.3	-3.0
Poland	7.2	7.7	11.2	10.3	16.5	19.0	20.5	19.8	22.7	20.6
Russia	0.0	0.0	-0.5	-26.9	-117.9	-217.2	-136.5	-49.3	34.9	22.0
Slovakia	0.0	0.0	0.0	0.6	1.1	1.1	3.0	3.1	1.4	1.6
Slovenia	0.0	0.0	0.2	3.3	-0.8	-1.1	1.8	2.5	2.2	2.9
Asia, total	467.5	304.2	377.1	573.0	751.1	1,276.9	1,434.6	1,691.2	954.6	784.3
China	73.7	78.6	85.4	94.2	24.1	42.2	16.1	-3.6	-33.9	18.2
Hong Kong	31.0	51.9	67.3	97.2	105.3	130.9	153.7	194.6	208.6	187.4
India	61.0	38.1	40.7	47.3	49.8	63.6	64.5	97.6	64.1	55.5
Indonesia	9.4	12.3	8.9	15.3	7.4	13.8	12.7	20.5	8.8	11.2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-3.
U.S. trade balance for advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Japan	5.1	-159.1	-121.8	-41.1	108.7	455.2	543.8	719.9	350.8	323.9
Malaysia	9.7	13.4	15.2	21.9	23.6	33.4	28.8	57.4	42.9	23.0
Philippines	9.3	8.7	9.5	12.9	13.9	17.0	20.9	31.6	16.1	25.1
Singapore	-0.1	-29.6	-44.7	-35.5	-6.3	6.4	-9.7	-5.4	-64.5	-293.4
South Korea	159.8	191.5	177.5	223.0	307.4	341.9	395.5	365.0	180.4	230.5
Taiwan	88.7	73.6	104.5	98.3	75.1	108.7	133.3	150.9	155.9	165.4
Thailand	20.0	24.9	34.7	39.6	42.1	63.8	74.9	62.7	25.2	37.4
South America, total	135.3	173.5	204.7	238.9	287.2	358.4	407.2	439.9	441.8	462.6
Argentina	21.3	38.9	51.7	56.9	99.3	75.5	81.0	88.3	43.7	96.5
Brazil	91.9	108.8	112.7	131.5	140.5	227.8	263.9	285.4	336.4	304.4
Chile	15.1	21.4	33.4	41.2	36.3	37.2	44.2	44.2	45.0	45.4
Peru	7.0	4.4	6.9	9.3	11.2	18.0	18.1	22.1	16.7	16.2
Africa, total	42.8	45.2	45.4	38.9	34.3	52.3	59.2	58.3	59.4	52.8
Kenya	0.5	0.5	1.3	0.5	0.5	0.6	1.4	0.9	1.2	2.6
Nigeria	12.2	10.5	11.2	3.6	2.1	1.0	4.1	2.1	4.0	2.3
South Africa	30.2	34.3	32.9	34.8	31.7	50.7	53.7	55.3	54.2	48.0
All other countries	-82.7	6.8	-104.3	109.6	172.3	170.5	202.3	206.2	279.1	113.3
Optoelectronics										
Total	-589.4	-1,382.8	-1,930.7	-1,810.4	-1,597.6	-1,615.0	-1,724.7	-1,810.2	-2,007.8	-2,447.6
NAFTA partners, total	-5.9	1.2	-110.1	19.4	95.4	54.8	-4.5	-125.3	-183.7	80.4
Canada	31.0	28.7	49.4	61.8	84.3	90.0	112.5	185.6	192.1	238.2
Mexico	-36.9	-27.5	-159.5	-42.4	11.0	-35.2	-117.0	-310.9	-375.8	-157.8
Europe four, total	146.5	106.2	129.9	136.0	196.6	217.5	206.6	268.4	387.6	510.5
France	30.0	28.8	26.3	20.9	27.7	35.9	39.5	58.2	58.1	64.6
Germany	44.1	33.4	68.5	69.0	110.5	133.9	117.9	109.1	119.3	212.1
Italy	23.6	21.6	18.2	6.4	12.0	8.2	16.3	22.2	38.3	63.8
United Kingdom	48.8	22.4	17.0	39.7	46.3	39.5	32.9	78.9	171.8	169.9
Other western Europe, total	15.2	26.1	29.7	11.9	-13.0	34.1	26.9	45.8	31.3	-17.0
Belgium	-3.5	0.6	5.3	0.8	1.2	8.0	5.1	5.6	8.0	5.6
Greece	0.4	0.6	1.1	0.4	0.4	0.9	1.3	0.9	1.7	1.9
Ireland	0.2	4.7	-1.1	1.7	-8.6	-2.9	6.3	13.1	8.0	6.1
Netherlands	15.4	15.1	14.2	17.8	5.0	25.5	16.8	31.4	42.9	36.4
Portugal	0.5	1.6	0.8	1.5	1.3	1.6	1.5	2.3	0.7	0.2
Spain	7.0	6.6	19.0	5.5	6.2	14.2	17.1	16.3	4.2	5.8
Switzerland	-4.9	-3.2	-9.6	-15.9	-18.5	-13.2	-21.2	-23.8	-34.2	-73.0
Nordic countries, total	12.0	4.1	9.5	8.2	15.8	9.8	14.9	6.4	29.1	21.4
Denmark	2.0	-1.0	0.3	0.1	0.4	-0.5	0.8	-1.0	-0.1	-3.2
Finland	5.2	2.7	2.7	2.6	2.0	2.3	2.6	3.2	6.3	3.3
Iceland	0.0	0.1	0.0	0.9	0.1	0.1	0.1	0.1	0.5	0.4
Norway	2.4	1.6	2.1	4.2	6.8	5.7	4.3	1.5	3.6	2.8
Sweden	2.4	0.7	4.3	0.3	6.4	2.2	7.0	2.6	18.8	18.0
Central/eastern Europe, total	-9.9	-1.9	-5.1	-6.8	3.0	1.9	3.7	9.1	11.0	4.8
Austria	-10.4	-3.0	-5.4	-2.2	0.2	-2.0	1.4	5.4	4.2	-0.3
Czech Republic	0.0	0.0	0.0	0.1	0.4	0.9	0.5	0.7	1.0	1.3
Czechoslovakia	0.2	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.2	0.6	0.2	-1.7	-0.3	0.4	0.2	0.3	0.9	-0.5
Poland	0.1	0.6	0.0	0.1	0.2	0.9	0.5	0.9	2.6	3.4
Russia	0.0	0.0	0.1	-3.2	1.8	1.2	0.1	1.0	0.9	0.1
Slovakia	0.0	0.0	0.0	0.1	0.0	0.1	0.4	0.1	0.2	0.1
Slovenia	0.0	0.0	-0.1	0.1	0.6	0.6	0.7	0.8	1.2	0.7
Asia, total	-806.3	-1,588.0	-2,054.1	-2,063.1	-1,969.5	-2,005.7	-2,018.7	-2,093.2	-2,342.7	-3,130.7
China	-5.3	-13.4	-24.7	-49.3	-173.3	-331.0	-375.6	-455.5	-632.0	-1,049.5
Hong Kong	4.6	2.2	-0.2	8.9	8.4	-12.2	5.6	16.3	26.2	43.8
India	1.8	0.9	2.0	2.7	6.5	11.1	2.7	1.1	2.2	5.2
Indonesia	0.4	0.4	1.5	0.8	0.8	0.3	-66.4	-65.0	-99.9	-129.0
Japan	-686.5	-1,460.9	-1,881.5	-1,747.3	-1,295.7	-993.9	-680.5	-766.2	-859.4	-1,334.5
Malaysia	-16.2	-23.9	-46.0	-135.4	-368.1	-489.1	-464.5	-343.4	-320.3	-338.1
Philippines	2.2	-1.1	-2.5	-4.9	-12.1	-46.3	-85.7	-79.8	-45.2	-6.1
Singapore	-51.9	-35.3	-42.5	-46.1	-38.8	-7.6	-159.9	-106.1	-93.4	-212.6
South Korea	-22.0	-13.8	-21.7	-11.4	18.7	8.1	21.1	47.2	-1.1	-16.9
Taiwan	-34.3	-45.3	-39.7	-73.8	-99.3	-119.9	-175.3	-277.3	-274.6	-51.4
Thailand	1.0	2.2	1.2	-7.3	-16.7	-25.3	-40.3	-64.6	-45.2	-41.6
South America, total	8.2	6.7	9.2	14.9	20.4	29.6	34.9	49.5	40.6	28.5
Argentina	1.2	2.3	4.3	6.0	6.7	6.5	6.2	8.2	6.7	6.3
Brazil	5.6	3.0	3.2	6.0	9.6	18.1	22.0	33.2	28.3	18.0
Chile	0.8	1.3	1.3	2.4	3.3	4.2	3.9	4.5	3.8	3.1
Peru	0.6	0.2	0.5	0.4	0.8	0.8	2.8	3.5	1.9	1.1
Africa, total	3.1	6.0	4.1	4.1	6.9	6.6	5.5	8.8	14.5	9.7
Kenya	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.7	0.3	0.1
Nigeria	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2	0.3
South Africa	2.7	5.8	3.8	3.9	6.7	6.3	5.3	8.1	14.1	9.3
All other countries	47.7	56.6	56.2	65.0	46.9	36.4	6.1	20.4	4.5	44.9

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-3.

U.S. trade balance for advanced technology products: 1990–99
 (Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Information and communication										
Total	1,264.5	1,572.9	-1,279.3	-5,591.4	-9,580.7	-10,975.1	-8,566.0	-8,537.2	-15,928.2	-27,580.1
NAFTA partners, total	2,666.1	2,428.1	2,811.7	2,988.7	2,285.9	1,210.2	2,156.4	2,470.8	2,025.5	-586.4
Canada	2,167.4	1,766.4	2,078.1	2,125.7	1,726.0	1,476.4	2,671.5	3,158.2	2,643.7	1,807.8
Mexico	498.7	661.7	733.6	863.0	559.9	-266.2	-515.1	-687.5	-618.2	-2,394.1
Europe four, total	7,092.7	6,033.7	5,603.4	5,264.5	5,790.0	6,735.1	7,102.2	7,293.9	7,331.1	6,700.7
France	1,214.2	1,061.7	1,054.1	943.6	1,095.0	1,599.5	1,579.9	1,503.1	1,202.7	1,112.4
Germany	2,483.4	2,147.0	2,018.2	1,829.6	1,899.9	2,459.8	2,905.3	2,449.0	2,465.7	2,786.2
Italy	608.3	701.1	588.6	363.9	296.5	179.3	346.4	351.2	268.2	-5.7
United Kingdom	2,786.8	2,123.9	1,942.5	2,127.3	2,498.7	2,496.5	2,270.7	2,990.7	3,394.4	2,807.7
Other western Europe, total	3,382.4	3,101.9	3,158.1	2,936.0	3,511.1	4,114.5	3,962.1	4,968.3	4,683.5	5,244.9
Belgium	424.1	391.4	380.2	294.1	279.3	290.8	307.2	324.2	447.3	444.5
Greece	24.2	36.5	41.6	49.4	32.4	47.4	41.2	39.6	73.4	115.4
Ireland	377.8	145.4	119.3	-80.0	528.2	671.0	312.8	-9.7	-459.7	-29.1
Netherlands	1,802.0	1,714.3	1,756.2	1,921.1	1,829.1	2,004.8	2,258.4	3,836.7	3,929.3	4,185.3
Portugal	45.9	50.1	56.3	47.2	71.6	69.5	61.1	91.9	66.1	32.9
Spain	311.6	377.9	414.8	327.6	373.9	545.6	514.0	294.6	197.6	259.5
Switzerland	396.9	386.3	389.8	376.6	396.5	485.5	467.4	391.1	429.4	236.4
Nordic countries, total	497.2	434.5	457.8	403.9	375.0	506.4	516.2	441.1	397.2	184.7
Denmark	116.2	114.3	120.9	119.0	110.2	164.1	182.6	162.7	115.9	106.7
Finland	98.5	81.2	60.8	53.4	52.7	102.1	128.3	18.2	94.9	130.6
Iceland	3.1	13.9	15.9	5.3	7.4	36.4	23.1	13.9	14.1	18.5
Norway	105.0	79.9	93.9	79.0	64.1	60.9	79.3	112.8	16.3	3.8
Sweden	174.4	145.1	166.3	147.2	140.6	142.9	102.8	133.5	156.0	-74.7
Central/eastern Europe, total	140.8	235.2	343.2	507.5	435.4	508.2	358.6	176.5	46.4	-273.9
Austria	107.9	144.4	98.7	119.1	102.3	142.1	126.8	114.3	109.1	113.0
Czech Republic	0.0	0.0	0.0	64.1	52.3	75.5	71.0	52.9	72.8	59.7
Czechoslovakia	8.4	23.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	11.3	17.0	29.0	66.4	41.9	29.1	-81.6	-307.6	-698.5	-1,034.3
Poland	13.3	50.8	53.2	63.1	56.2	55.3	44.8	74.4	96.7	170.4
Russia	0.0	0.0	85.9	176.3	158.3	180.0	166.8	213.9	393.3	329.8
Slovakia	0.0	0.0	0.0	4.0	8.2	9.0	13.0	14.8	52.1	69.1
Slovenia	0.0	0.0	6.4	14.5	16.2	17.2	17.9	13.8	20.9	18.4
Asia, total	-16,262.8	-14,618.3	-17,747.5	-22,622.2	-27,874.2	-30,934.6	-29,842.9	-33,560.4	-39,478.7	-46,704.4
China	118.4	-63.8	-68.5	-213.3	-1,214.9	-1,889.1	-2,116.1	-2,916.4	-3,034.5	-4,634.1
Hong Kong	-437.5	-211.6	-30.2	21.3	366.2	1,104.2	1,043.9	1,807.1	1,455.9	1,568.2
India	86.7	77.2	71.4	61.8	97.1	145.8	150.0	41.2	190.1	229.8
Indonesia	88.8	27.2	-73.6	-230.4	-386.7	-269.1	-67.3	-113.6	-499.4	-604.9
Japan	-8,823.4	-7,378.3	-8,320.2	-10,378.2	-11,560.5	-10,824.7	-8,466.2	-8,966.7	-9,556.9	-11,295.9
Malaysia	-164.6	-538.2	-1,106.9	-1,791.2	-2,705.5	-3,375.9	-3,224.8	-3,710.8	-5,801.8	-7,283.4
Philippines	-11.5	-23.0	-100.4	-115.3	-45.0	-230.2	-633.2	-1,317.2	-2,093.2	-2,177.4
Singapore	-3,412.9	-3,534.3	-4,479.0	-5,476.3	-6,844.4	-8,100.2	-9,319.4	-9,214.8	-8,958.1	-8,511.4
South Korea	-1,049.5	-542.8	-709.7	-1,049.2	-1,015.3	-1,982.3	-792.8	-1,251.2	-2,465.6	-4,363.9
Taiwan	-2,075.9	-1,873.8	-2,085.6	-2,540.2	-3,367.0	-4,373.7	-5,334.0	-6,357.8	-6,810.7	-7,988.0
Thailand	-576.4	-556.8	-845.0	-911.1	-1,198.2	-1,139.6	-1,083.0	-1,560.1	-1,904.6	-1,643.3
South America, total	592.4	723.9	1,032.5	1,326.3	2,017.8	2,180.0	2,781.0	3,778.0	3,636.7	3,627.1
Argentina	145.4	252.1	354.6	467.1	717.9	493.7	615.8	880.4	899.3	1,014.1
Brazil	326.4	322.7	475.3	626.2	991.8	1,311.3	1,736.4	2,242.0	2,024.6	1,876.9
Chile	89.9	117.0	155.7	177.8	213.6	251.6	283.6	397.6	464.3	547.6
Peru	30.7	32.1	46.9	55.2	94.5	123.3	145.2	258.0	248.5	188.5
Africa, total	158.2	168.6	178.0	223.0	189.9	229.2	213.8	264.2	344.9	232.2
Kenya	4.5	4.7	1.4	3.4	5.4	4.6	2.8	3.9	7.5	-1.1
Nigeria	15.1	16.5	25.1	40.7	11.9	16.4	13.4	16.3	20.0	25.0
South Africa	138.6	147.4	151.5	178.9	172.6	208.2	197.5	244.0	317.5	208.3
All other countries	2,997.5	3,065.4	2,883.5	3,381.1	3,688.4	4,475.9	4,186.6	5,630.5	5,085.2	3,995.1
Electronics										
Total	-3,563.0	-3,682.4	-4,452.3	-6,009.8	-9,408.7	-7,009.3	-1,550.1	1,068.7	4,233.1	9,350.3
NAFTA partners, total	383.3	545.7	591.6	1,049.0	2,148.2	4,257.8	4,406.5	4,782.7	4,929.0	6,950.3
Canada	420.2	586.8	576.5	1,044.6	1,853.8	3,788.4	3,129.8	2,886.0	2,903.0	3,709.9
Mexico	-36.9	-41.1	15.1	4.4	294.5	469.4	1,276.8	1,896.8	2,026.1	3,240.4
Europe four, total	1,108.0	1,270.6	1,330.1	1,701.2	1,440.2	1,710.4	1,200.7	1,506.1	1,362.4	1,890.0
France	283.7	271.4	200.1	205.8	-85.1	-241.4	-392.2	-92.3	-176.0	186.0
Germany	187.6	201.9	140.6	226.7	140.8	173.2	93.7	17.4	173.7	152.0
Italy	139.9	192.4	147.1	101.8	1.6	114.2	212.7	363.4	358.9	334.1
United Kingdom	496.8	604.9	842.3	1,166.9	1,383.0	1,664.5	1,286.5	1,217.6	1,005.8	1,217.9
Other western Europe, total	209.0	221.2	201.0	245.4	333.8	-87.4	653.2	1,066.7	715.3	851.0
Belgium	34.3	30.7	27.7	39.4	50.1	52.2	6.8	28.4	20.4	8.0
Greece	0.2	1.3	5.4	1.3	1.0	2.1	2.5	1.2	2.7	5.1
Ireland	26.7	18.2	15.1	52.7	65.8	-464.0	-30.4	78.8	177.2	181.2
Netherlands	118.6	133.9	88.1	114.4	175.7	225.2	605.3	858.4	451.9	478.4
Portugal	2.6	5.7	-0.9	-28.3	-2.2	-12.4	-10.5	-6.5	-14.8	86.7
Spain	-11.0	-10.8	12.7	27.1	-7.8	36.1	31.8	40.2	51.5	61.5
Switzerland	37.6	42.2	52.9	38.8	51.1	73.4	47.6	66.2	26.5	30.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-3.

U.S. trade balance for advanced technology products: 1990–99
 (Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nordic countries, total	54.8	72.4	104.3	133.8	198.7	244.1	250.0	300.6	280.5	264.1
Denmark	11.1	12.5	12.6	17.7	31.7	43.9	40.6	43.5	36.5	41.6
Finland	12.6	13.2	18.5	28.3	44.0	44.2	34.1	41.7	78.2	83.9
Iceland	0.1	0.2	0.2	-6.1	0.5	0.8	0.7	1.4	0.9	2.4
Norway	10.6	15.1	19.4	21.7	31.1	32.5	30.4	27.9	37.5	33.0
Sweden	20.4	31.4	53.6	72.1	91.4	122.7	144.3	186.0	127.4	103.3
Central/eastern Europe, total	2.3	12.6	16.3	11.7	13.3	12.2	-7.5	-16.2	-45.6	-56.8
Austria	1.5	9.1	8.9	1.1	-3.6	-8.1	-23.3	-28.1	-56.4	-52.6
Czech Republic	0.0	0.0	0.0	2.1	4.0	8.1	4.7	2.6	8.0	2.7
Czechoslovakia	0.2	0.9	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.4	1.0	0.3	1.9	0.2	-2.7	-1.4	-7.4	-15.2	-12.6
Poland	0.3	1.6	1.4	2.1	3.8	3.4	3.4	3.3	5.9	3.1
Russia	0.0	0.0	1.9	3.6	7.3	10.1	4.0	10.6	11.4	1.7
Slovakia	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.8	0.3	0.0
Slovenia	0.0	0.0	0.3	0.7	1.4	1.3	5.0	2.0	0.5	0.9
Asia, total	-5,613.3	-6,077.4	-6,960.2	-9,522.1	-13,921.3	-13,785.9	-8,800.2	-7,141.4	-3,580.4	-1,588.0
China	19.7	14.9	14.7	3.3	-61.5	-97.3	-72.2	-146.1	-43.4	18.7
Hong Kong	157.6	181.7	293.3	234.5	225.3	400.4	715.9	478.8	539.6	1,143.9
India	42.0	26.6	26.2	23.4	30.9	64.8	43.0	21.7	31.9	22.6
Indonesia	-12.3	-19.7	-41.1	-43.2	-50.6	-101.9	-33.4	-104.7	-145.2	-88.4
Japan	-1,827.9	-2,265.8	-2,753.8	-3,782.3	-5,404.9	-6,669.9	-4,058.7	-3,474.7	-2,388.1	-2,513.0
Malaysia	-1,174.4	-1,226.0	-1,549.8	-2,358.1	-2,970.8	-1,238.2	-1,686.5	-1,414.8	-406.3	-212.2
Philippines	-473.7	-547.1	-712.8	-931.9	-1,234.1	-467.9	-305.9	-246.9	-383.8	-211.8
Singapore	-498.8	-523.6	-406.2	-25.7	-119.5	118.7	467.6	780.4	1,034.5	1,070.1
South Korea	-1,393.2	-1,494.3	-1,658.8	-2,030.7	-3,391.9	-4,972.2	-3,610.6	-2,899.2	-1,800.0	-650.3
Taiwan	-110.2	111.8	87.5	-205.7	-377.9	-590.2	-145.5	-196.6	-207.0	-327.8
Thailand	-342.0	-335.9	-259.4	-405.6	-566.3	-232.1	-113.9	60.7	187.5	160.2
South America, total	121.4	121.7	105.2	113.3	156.6	229.6	286.7	364.2	378.7	707.4
Argentina	10.0	14.1	26.6	17.9	22.6	14.5	11.3	28.8	22.4	33.3
Brazil	106.9	103.3	72.5	87.6	122.1	197.3	258.6	315.7	339.4	640.9
Chile	4.0	3.7	5.3	6.8	9.6	14.3	12.7	11.8	12.8	24.6
Peru	0.5	0.6	0.8	1.1	2.4	3.5	4.2	7.9	4.1	8.6
Africa, total	16.0	21.1	13.0	21.3	19.9	27.6	14.5	18.2	18.4	19.1
Kenya	-0.4	-0.1	-1.9	-0.6	0.4	-0.4	-0.2	1.7	0.1	-1.1
Nigeria	0.8	0.6	0.3	1.8	0.8	0.8	0.2	0.4	0.1	0.4
South Africa	15.5	20.6	14.7	20.1	18.7	27.2	14.5	16.0	18.1	19.9
All other countries	155.4	129.8	146.4	236.6	201.9	382.3	445.9	187.6	174.7	313.1

Flexible manufacturing

Total	1,419.1	1,461.7	1,728.1	1,816.8	2,291.3	2,522.1	2,842.9	2,328.5	719.6	2,643.8
NAFTA partners, total	514.1	514.7	582.3	560.0	713.1	482.2	474.6	814.7	833.6	836.9
Canada	383.4	356.7	346.9	354.3	500.0	505.8	386.0	581.5	544.3	499.4
Mexico	130.8	158.1	235.4	205.7	213.1	-23.6	88.6	233.2	289.3	337.6
Europe four, total	405.6	402.6	425.0	466.5	543.4	546.7	359.6	47.0	-168.1	-108.1
France	120.3	152.4	165.1	204.2	251.4	255.6	315.6	255.7	139.9	179.5
Germany	93.6	69.1	28.7	16.4	32.2	82.7	-106.6	-317.2	-348.2	-346.8
Italy	81.5	71.7	93.7	76.8	83.2	114.1	44.8	17.4	14.2	107.9
United Kingdom	110.2	109.4	137.5	169.1	176.6	94.3	105.7	91.0	26.0	-48.7
Other western Europe, total	124.7	110.2	135.9	194.8	177.3	26.6	-32.6	-144.8	4.1	-92.7
Belgium	29.6	25.7	33.5	14.3	27.7	29.4	34.0	36.3	33.0	34.9
Greece	2.3	2.5	4.2	3.7	1.3	2.8	4.0	3.1	3.3	2.3
Ireland	12.7	14.3	27.5	95.2	81.8	73.8	47.5	104.7	205.7	115.6
Netherlands	65.0	34.1	57.4	70.4	91.4	-31.6	-88.5	-220.5	-122.2	-158.7
Portugal	4.3	5.6	6.5	5.6	7.3	5.3	6.9	0.6	2.4	7.0
Spain	25.1	32.1	32.2	26.1	22.6	25.3	27.8	31.7	-6.1	0.1
Switzerland	-14.2	-4.0	-25.5	-20.4	-54.8	-78.5	-64.3	-100.8	-112.1	-93.8
Nordic countries, total	-17.5	12.6	1.4	-36.2	-47.2	-83.5	-83.5	-50.2	-69.8	-47.8
Denmark	7.4	7.5	6.1	6.0	6.1	7.1	13.4	5.4	-0.5	1.5
Finland	1.5	-0.9	2.4	-6.9	-4.6	1.9	-2.5	-7.3	-23.6	-11.5
Iceland	0.3	0.6	0.6	0.9	0.7	0.5	0.9	1.0	0.4	0.3
Norway	5.7	7.1	9.9	13.5	5.0	-2.7	-3.8	9.1	8.7	6.0
Sweden	-32.4	-1.6	-17.6	-49.7	-54.3	-90.4	-91.5	-58.4	-54.8	-44.1
Central/eastern Europe, total	-0.7	8.0	13.1	23.3	50.4	10.8	-4.1	-14.2	-16.6	-1.5
Austria	-4.4	5.4	8.9	7.3	10.9	0.9	-12.5	-7.3	-17.3	-24.6
Czech Republic	0.0	0.0	0.0	-8.4	-9.4	-15.0	-22.3	-34.8	0.0	0.0
Czechoslovakia	2.2	0.3	-1.2	0.0	0.0	0.0	0.0	0.0	-30.5	-4.9
Hungary	-0.3	0.7	0.4	0.2	2.4	4.3	1.5	1.0	4.4	4.8
Poland	1.8	1.6	2.3	1.4	1.8	0.3	1.2	2.8	2.8	1.5
Russia	0.0	0.0	2.3	20.2	37.9	13.3	22.3	21.6	22.4	16.9
Slovakia	0.0	0.0	0.0	1.9	2.3	0.4	0.3	-0.1	1.2	2.0
Slovenia	0.0	0.0	0.4	0.7	4.5	6.6	5.4	2.6	0.4	2.7

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-3.

U.S. trade balance for advanced technology products: 1990–99

(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Asia, total	113.4	155.6	261.4	256.6	505.8	1,119.5	1,699.1	1,142.3	-392.0	1,401.0
China	59.7	87.9	105.8	153.3	170.8	133.0	179.0	136.2	150.4	105.4
Hong Kong	33.2	41.8	59.0	86.1	106.8	101.0	127.2	138.4	92.2	90.8
India	35.3	17.6	17.3	29.8	38.1	31.9	57.7	27.8	27.0	21.6
Indonesia	4.3	5.4	11.7	9.7	8.1	14.9	16.2	15.0	7.6	6.5
Japan	-510.5	-585.7	-628.3	-956.9	-1,148.8	-1,501.2	-1,508.1	-2,434.1	-2,553.9	-1,865.2
Malaysia	56.7	54.0	74.9	113.1	116.2	184.2	186.6	294.1	213.6	129.3
Philippines	40.9	37.3	30.3	54.1	47.6	101.2	88.6	159.9	195.1	78.8
Singapore	90.4	83.5	115.0	161.4	159.2	287.6	366.9	453.5	304.8	442.6
South Korea	198.5	277.9	284.9	365.5	668.5	1,202.3	1,396.6	992.6	290.6	814.2
Taiwan	84.1	118.2	167.4	216.9	304.2	526.8	733.0	1,309.7	852.0	1,551.5
Thailand	20.7	17.5	23.3	23.6	34.9	37.9	55.4	49.3	28.5	25.6
South America, total	46.0	44.6	41.8	65.4	69.8	92.4	103.5	189.9	173.6	151.9
Argentina	4.6	8.6	11.1	17.0	27.4	19.9	21.7	25.9	25.7	28.6
Brazil	32.5	26.9	22.1	33.6	26.1	51.5	57.1	134.1	116.2	91.9
Chile	7.5	6.8	7.3	12.0	12.7	15.7	17.6	22.5	24.0	18.8
Peru	1.4	2.3	1.4	2.9	3.6	5.4	7.2	7.4	7.7	12.6
Africa, total	13.2	18.7	14.5	13.4	14.3	16.2	26.9	27.2	21.9	16.9
Kenya	0.2	0.8	0.5	0.2	0.8	0.5	0.7	0.6	0.2	0.9
Nigeria	0.7	1.6	1.9	1.1	2.3	2.2	2.8	1.2	1.4	2.7
South Africa	12.2	16.4	12.2	12.1	11.2	13.5	23.4	25.4	20.3	13.4
All other countries	220.2	194.7	252.7	273.2	264.6	311.2	299.4	316.4	332.9	487.1
Advanced materials										
Total	5,357.5	5,174.6	5,605.3	6,351.3	9,314.4	2,991.9	1,666.2	1,920.6	153.0	5.2
NAFTA partners, total	913.2	901.0	1,131.1	1,092.4	1,245.5	599.9	353.5	389.6	88.5	130.2
Canada	757.6	718.7	895.3	855.2	893.4	159.4	200.8	258.2	57.4	115.8
Mexico	155.6	182.3	235.8	237.1	352.1	440.5	152.6	131.4	31.0	14.4
Europe four, total	76.8	149.2	79.3	-156.2	237.1	66.5	110.1	92.4	-32.5	38.5
France	-46.8	18.5	-17.2	-84.1	90.8	1.1	45.5	55.8	17.2	25.8
Germany	11.1	0.9	-11.5	-60.7	-32.9	-79.1	-78.7	-78.4	-80.3	-46.9
Italy	44.9	52.5	67.9	16.2	39.4	19.9	11.7	-1.8	8.5	32.4
United Kingdom	67.5	77.4	40.1	-27.6	139.9	124.6	131.6	116.8	22.1	27.2
Other western Europe, total	72.6	60.2	59.0	48.7	100.8	75.1	81.3	66.5	23.1	40.1
Belgium	2.0	1.4	2.0	2.6	3.8	2.4	5.1	4.3	0.3	3.1
Greece	0.2	0.5	0.1	0.2	0.2	0.3	1.4	1.6	0.1	0.0
Ireland	38.5	35.8	24.4	40.9	45.4	32.7	38.5	41.9	15.0	16.3
Netherlands	8.6	14.5	16.6	7.5	7.9	4.8	11.4	-3.7	-4.6	12.2
Portugal	18.2	19.6	21.6	19.9	16.8	12.7	2.3	0.8	0.5	0.2
Spain	4.7	-11.7	-6.9	-21.9	24.0	21.7	22.8	20.7	17.0	18.7
Switzerland	0.4	0.1	1.2	-0.4	2.7	0.4	-0.1	0.9	-5.1	-10.4
Nordic countries, total	1.3	-5.9	2.9	-1.8	5.3	11.8	23.9	5.3	-48.2	-31.7
Denmark	-3.0	-6.9	0.4	-7.8	-7.5	-4.1	-4.2	-12.1	-44.2	-22.9
Finland	1.5	1.7	3.2	1.8	1.0	0.7	-1.6	-6.7	-13.7	-20.4
Iceland	1.2	1.8	0.7	1.2	0.4	0.7	0.3	0.1	0.1	0.1
Norway	0.5	1.8	6.2	6.6	6.1	5.3	13.0	7.0	6.1	6.0
Sweden	1.0	-4.1	-7.6	-3.6	5.3	9.3	16.4	17.1	3.6	5.5
Central/eastern Europe, total	0.1	0.4	9.2	17.7	8.7	6.7	23.8	18.0	10.7	9.2
Austria	0.3	0.7	4.8	5.7	-1.1	2.5	5.7	5.0	6.3	4.8
Czech Republic	0.0	0.0	0.0	0.6	1.0	-2	0.1	0.3	-2.9	-3.4
Czechoslovakia	0.0	0.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.0	0.0	0.1	0.2	1.4	0.6	2.1	0.3	0.1	0.0
Poland	-0.2	-0.4	3.4	8.8	5.7	3.2	5.8	5.1	2.8	0.2
Russia	0.0	0.0	0.0	0.2	1.1	2.4	5.3	4.2	2.9	7.3
Slovakia	0.0	0.0	0.0	1.8	0.6	0.1	4.6	3.0	1.4	0.1
Slovenia	0.0	0.0	0.1	0.4	0.1	0.0	0.2	0.1	0.1	0.0
Asia, total	4,324.0	4,147.5	4,383.8	5,322.4	7,606.5	2,128.2	913.8	1,144.8	-6.3	-276.2
China	7.8	3.6	20.0	19.3	39.1	54.6	69.4	117.2	16.3	-18.3
Hong Kong	328.5	299.3	294.0	375.8	553.3	294.9	95.5	85.6	98.6	57.6
India	-0.9	-0.8	1.3	1.3	2.9	1.5	10.2	0.2	-1.7	-6.2
Indonesia	11.9	6.5	14.1	29.1	37.3	53.9	5.3	3.9	0.0	-2.4
Japan	-48.2	36.7	-99.8	-110.5	282.3	-46.4	-100.6	-171.1	-124.8	-322.0
Malaysia	1,310.0	1,311.7	1,302.0	1,758.3	2,526.3	438.3	174.3	199.2	-62.3	-55.6
Philippines	494.0	479.3	579.0	686.4	1,136.4	221.1	144.1	301.3	2.1	3.4
Singapore	635.6	646.5	765.3	872.2	713.4	372.7	193.2	148.5	47.3	54.9
South Korea	730.4	595.7	739.6	811.7	1,107.4	241.5	54.5	98.4	-6.8	-4.9
Taiwan	374.1	320.5	408.5	373.9	521.3	138.1	115.7	160.6	28.2	23.5
Thailand	481.0	448.6	359.8	505.1	686.8	358.0	152.1	201.0	-3.1	-6.2
South America, total	13.4	8.3	23.6	39.3	35.8	28.4	55.5	95.2	53.0	60.4
Argentina	2.0	1.9	6.6	17.2	8.3	5.4	6.3	8.2	7.1	8.9
Brazil	10.9	5.8	12.0	16.7	21.4	18.9	42.7	81.1	42.1	49.0
Chile	0.3	0.5	4.7	5.4	4.9	3.2	5.2	5.1	3.3	1.5
Peru	0.2	0.2	0.3	0.1	1.1	0.9	1.2	0.8	0.5	1.0
Africa, total	1.2	1.3	1.8	2.2	3.1	3.5	4.7	3.1	11.1	6.0
Kenya	-0.1	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	0.0	-0.1
Nigeria	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-3.
U.S. trade balance for advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
South Africa	1.2	1.3	1.8	2.2	3.1	3.6	4.5	3.1	11.1	6.1
All other countries	-45.1	-87.5	-85.5	-13.3	71.6	71.8	99.6	105.7	53.5	28.7
Aerospace										
Total	25,441.2	29,114.4	29,123.3	25,183.1	23,364.5	19,977.0	24,940.8	30,571.1	39,285.1	36,805.2
NAFTA partners, total	-9.2	-53.4	485.9	-35.1	-178.3	-150.5	-428.3	-841.2	-1,060.5	-1,009.4
Canada	-341.2	-524.8	-277.0	-441.2	-765.8	-252.5	-545.4	-1,040.7	-1,716.6	-1,499.4
Mexico	332.0	471.4	762.9	406.1	587.5	102.0	117.1	199.5	656.1	490.0
Europe four, total	5,130.2	5,890.9	3,462.2	1,831.3	2,184.3	1,036.5	1,393.9	2,885.1	4,411.3	5,353.4
France	529.6	906.9	-232.6	-682.9	-524.9	-752.0	-699.5	-1,121.8	-1,055.5	-536.6
Germany	1,902.4	2,937.0	2,078.8	1,144.8	779.0	742.9	854.7	1,283.7	2,363.2	1,802.2
Italy	344.9	446.0	688.8	180.4	716.2	642.0	391.0	197.5	64.8	892.8
United Kingdom	2,353.2	1,600.9	927.2	1,189.0	1,214.0	403.6	847.7	2,525.7	3,038.8	3,194.9
Other western Europe, total	3,424.7	3,968.6	2,414.8	1,455.9	2,662.1	3,151.4	3,625.7	3,108.6	2,931.6	4,087.4
Belgium	545.9	694.2	301.7	149.9	220.8	169.8	362.6	392.8	556.9	220.9
Greece	44.5	242.1	72.6	118.6	72.3	557.7	90.5	161.2	522.7	164.9
Ireland	270.7	345.7	416.3	159.1	166.4	147.9	138.6	131.3	215.5	632.2
Netherlands	1,201.7	735.2	285.9	385.2	1,126.4	1,747.1	1,170.0	1,230.7	790.7	1,338.7
Portugal	132.8	49.5	213.7	40.8	310.4	39.9	49.6	59.9	75.3	98.8
Spain	1,014.1	777.1	586.4	328.7	380.1	194.0	207.4	234.7	153.8	1,112.8
Switzerland	215.0	1,124.8	538.3	273.5	385.7	295.0	1,607.1	897.9	616.5	519.2
Nordic countries, total	1,578.3	1,751.1	958.1	589.8	470.5	604.0	1,919.0	923.9	1,712.4	2,061.5
Denmark	302.1	431.5	324.3	77.1	109.1	192.7	269.7	213.0	482.1	419.8
Finland	230.7	192.9	71.4	126.4	142.4	136.6	1,208.3	420.4	583.7	330.1
Iceland	141.3	39.4	4.5	3.5	3.3	1.7	59.2	1.6	69.0	67.8
Norway	283.7	366.6	235.5	150.4	116.7	42.9	160.0	163.9	168.3	134.3
Sweden	620.6	720.5	322.5	232.3	99.0	230.2	221.8	124.9	409.4	1,109.5
Central/eastern Europe, total	171.3	204.4	571.3	452.0	490.9	322.7	74.7	594.5	1,174.6	620.7
Austria	84.8	99.7	191.2	93.9	17.0	102.3	15.5	165.3	198.3	267.4
Czech Republic	0.0	0.0	0.0	21.0	15.7	8.5	3.3	173.3	122.1	128.6
Czechoslovakia	0.5	3.3	153.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	3.1	95.2	87.1	160.4	35.0	3.7	6.8	3.8	3.9	4.9
Poland	82.9	6.2	117.9	153.8	75.8	83.3	50.0	264.5	7.1	11.0
Russia	0.0	0.0	21.2	21.5	344.0	121.7	-4.4	-25.1	839.2	207.4
Slovakia	0.0	0.0	0.0	0.1	0.0	0.1	0.5	11.7	0.2	0.1
Slovenia	0.0	0.0	0.9	1.4	3.4	3.1	2.9	1.0	3.8	1.3
Asia, total	8,800.0	10,585.2	12,366.4	13,653.2	12,351.0	10,622.2	11,664.5	14,856.3	17,293.2	13,598.3
China	781.2	1,207.9	2,085.7	2,240.0	1,928.9	1,041.6	1,619.5	2,126.3	3,492.1	2,425.1
Hong Kong	559.4	751.9	648.7	558.3	400.4	434.9	708.8	188.8	468.3	330.8
India	26.2	27.5	21.4	498.3	204.0	101.2	392.5	312.9	458.7	433.9
Indonesia	406.6	115.5	444.7	772.1	446.6	98.3	222.9	501.0	285.4	33.2
Japan	3,499.2	2,962.8	3,598.6	2,633.0	3,118.3	2,580.6	2,308.0	2,945.0	3,928.4	3,590.6
Malaysia	438.9	660.8	817.4	1,507.6	977.1	273.2	309.6	1,413.3	1,358.7	465.7
Philippines	197.4	39.8	60.6	393.5	46.0	178.0	269.1	103.1	54.2	89.8
Singapore	718.8	1,158.3	806.8	1,256.7	1,581.8	1,258.2	1,288.5	1,606.6	1,906.8	1,905.3
South Korea	1,017.5	1,521.4	1,541.3	1,453.1	1,657.9	2,242.6	2,163.5	2,314.4	1,663.8	1,600.1
Taiwan	613.5	1,265.2	1,333.4	2,038.6	1,662.0	1,766.6	1,426.1	2,215.2	2,864.2	2,109.0
Thailand	541.3	874.0	1,007.9	302.0	328.0	647.1	956.0	1,129.8	812.8	614.9
South America, total	862.6	1,451.6	1,381.1	754.2	320.2	778.1	939.3	1,116.0	1,229.5	645.2
Argentina	98.1	57.3	273.9	208.7	98.1	164.2	61.7	133.6	278.4	371.7
Brazil	570.6	1,227.9	881.8	486.2	168.4	414.4	526.5	689.6	465.0	87.2
Chile	168.3	146.5	213.1	47.7	47.3	157.6	342.0	270.2	448.0	150.2
Peru	25.6	19.9	12.2	11.6	6.4	41.8	9.0	22.5	38.1	36.1
Africa, total	230.1	423.5	291.2	336.5	139.2	167.6	181.5	291.3	809.4	254.8
Kenya	5.7	6.0	7.9	9.0	9.1	6.8	10.9	90.9	47.0	54.2
Nigeria	38.9	10.8	5.0	5.2	13.9	4.8	3.1	2.5	5.0	4.5
South Africa	185.5	406.7	278.2	322.4	116.1	156.0	167.4	197.9	757.5	196.1
All other countries	5,253.3	4,892.6	7,192.3	6,145.3	4,924.6	3,445.1	5,570.6	7,636.7	10,783.6	11,193.3
Weapons										
Total	1,494.3	1,856.0	1,734.9	1,583.1	1,423.5	1,693.0	1,926.7	2,050.8	1,889.6	1,542.9
NAFTA partners, total	117.7	215.9	145.6	183.2	174.5	154.5	170.2	192.8	116.4	120.2
Canada	109.6	211.9	142.3	176.1	163.8	143.9	154.9	154.0	105.4	113.0
Mexico	8.2	3.9	3.4	7.0	10.8	10.6	15.4	38.9	11.0	7.2
Europe four, total	513.3	682.1	674.2	342.7	354.6	397.3	320.6	318.2	324.4	313.4
France	47.1	39.4	82.3	29.6	30.7	48.0	41.3	37.7	52.0	52.8
Germany	319.9	495.2	458.0	213.4	186.2	148.4	90.3	65.3	40.6	75.9
Italy	27.3	31.5	27.6	29.0	23.3	17.0	18.4	32.7	30.1	37.6
United Kingdom	119.0	115.9	106.3	70.7	114.4	183.8	170.6	182.5	201.7	147.1
Other western Europe, total	136.4	156.8	196.5	156.9	123.1	123.5	196.1	141.4	138.9	257.0
Belgium	19.1	12.8	16.2	26.1	27.9	14.4	8.4	4.3	3.9	3.3
Greece	1.5	2.6	1.7	2.9	3.9	15.0	2.9	6.4	26.3	41.7
Ireland	1.2	0.9	0.8	0.8	1.2	0.8	0.8	3.4	1.7	1.2
Netherlands	31.8	41.9	67.8	70.4	36.5	35.4	78.4	73.6	70.7	157.5
Portugal	0.5	6.7	11.8	1.1	1.8	4.4	17.4	1.4	4.5	2.5
Spain	29.4	14.0	56.1	10.7	19.5	18.3	37.5	17.0	13.8	22.5

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-3.
U.S. trade balance for advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Switzerland	52.8	78.0	42.1	45.0	32.4	35.1	50.7	35.3	18.0	28.3
Nordic countries, total	39.3	59.1	32.8	57.3	62.6	67.2	75.8	77.1	141.4	100.4
Denmark	4.1	1.7	2.1	2.9	10.2	5.5	8.9	9.5	15.5	3.6
Finland	2.8	2.9	2.0	1.2	1.4	4.1	3.1	4.3	5.8	7.2
Iceland	0.0	-2.6	0.1	0.4	0.1	0.2	0.2	0.1	0.2	0.1
Norway	13.7	61.3	29.8	45.5	32.9	45.9	42.4	49.1	92.7	84.9
Sweden	18.7	-4.1	-1.2	7.3	18.0	11.5	21.1	14.0	27.2	4.5
Central/eastern Europe, total	2.6	6.1	9.8	5.7	5.1	20.7	6.3	48.9	9.6	8.4
Austria	2.2	4.8	6.1	2.6	2.2	1.9	1.9	44.3	6.2	10.2
Czech Republic	0.0	0.0	0.0	-0.3	0.2	0.5	0.8	0.4	0.3	1.1
Czechoslovakia	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.1	0.5	0.4	0.2	0.2	0.3	0.2	0.4	-1.3	0.1
Poland	0.4	0.7	1.7	0.4	0.7	0.7	1.9	3.0	3.6	1.4
Russia	0.0	0.0	1.1	2.5	1.7	17.3	1.0	0.5	0.5	-4.5
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0
Slovenia	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.3	0.1
Asia, total	433.7	531.4	483.4	681.7	579.1	657.9	834.2	792.0	620.5	363.0
China	13.0	22.1	17.3	20.5	17.7	26.4	6.3	2.5	-14.0	-22.7
Hong Kong	4.2	11.4	11.5	7.2	7.4	9.4	8.7	12.7	7.5	3.5
India	7.7	6.0	5.4	4.8	8.8	8.9	10.9	19.0	5.5	5.6
Indonesia	1.3	4.8	6.2	5.9	3.6	2.8	7.0	2.9	3.3	1.4
Japan	193.9	305.3	312.4	467.1	340.2	371.9	582.2	447.3	473.2	271.7
Malaysia	4.7	2.9	2.3	3.8	2.9	8.6	9.1	9.0	3.0	5.5
Philippines	0.9	0.4	0.8	0.1	0.5	-1.1	4.8	2.9	-1.0	0.0
Singapore	36.1	36.5	22.0	26.2	27.2	30.0	38.5	33.6	31.5	20.4
South Korea	47.9	68.7	47.2	30.3	22.2	32.1	52.5	55.5	55.9	57.0
Taiwan	123.1	63.6	56.6	112.9	144.9	157.1	109.5	196.8	51.2	17.1
Thailand	1.0	9.7	1.6	2.9	3.8	11.9	4.5	9.7	4.5	3.3
South America, total	12.2	15.1	14.8	10.1	11.6	19.6	15.9	21.9	28.2	55.2
Argentina	1.6	4.8	4.3	2.8	2.6	4.0	5.1	6.1	6.8	3.8
Brazil	9.7	7.4	7.0	5.1	4.7	10.5	6.1	9.6	15.4	17.1
Chile	2.2	2.5	3.4	1.5	4.1	2.6	2.2	2.4	4.6	33.6
Peru	-1.4	0.3	0.1	0.7	0.2	2.5	2.4	3.7	1.3	0.7
Africa, total	9.2	10.8	8.6	3.4	5.9	5.8	6.8	6.1	9.1	4.7
Kenya	0.1	0.2	0.3	0.1	0.2	0.1	0.0	0.1	0.2	0.0
Nigeria	7.9	8.0	6.5	1.9	1.0	1.8	2.1	3.2	6.7	1.0
South Africa	1.2	2.6	1.8	1.3	4.7	4.0	4.7	2.8	2.2	3.7
All other countries	229.8	178.8	169.1	142.1	106.9	246.6	300.8	452.4	501.1	320.6

Nuclear technology

Total	1,067.2	1,150.0	1,249.2	1,182.8	1,295.9	974.8	975.9	1,118.8	485.9	48.1
NAFTA partners, total	26.9	37.3	42.5	27.3	54.8	4.5	19.8	1.5	37.8	6.3
Canada	24.7	27.9	23.7	21.6	45.6	0.7	1.2	-1.6	-6.0	-1.4
Mexico	2.1	9.4	18.8	5.7	9.2	3.8	18.6	3.0	43.8	7.8
Europe four, total	80.3	104.2	91.9	98.4	101.3	74.6	44.3	54.6	-41.2	-231.0
France	16.8	13.7	10.7	22.2	31.2	23.3	12.1	3.8	-94.2	-230.5
Germany	30.8	39.0	46.5	47.0	39.0	35.0	13.2	34.4	59.9	53.6
Italy	9.8	10.3	9.6	8.3	7.9	5.4	6.6	9.8	5.7	3.7
United Kingdom	22.9	41.2	25.1	20.8	23.2	10.9	12.4	6.6	-12.6	-57.7
Other western Europe, total	31.2	44.5	53.2	53.3	61.7	85.3	75.2	95.4	25.1	19.3
Belgium	4.0	5.0	3.8	8.7	5.3	9.5	26.7	31.2	2.1	7.4
Greece	0.2	0.5	0.5	0.6	0.4	0.7	0.4	0.3	0.4	0.4
Ireland	1.6	0.8	1.8	0.9	1.0	0.0	1.4	0.3	0.3	0.4
Netherlands	8.5	8.8	8.1	11.4	9.8	9.7	6.7	7.6	-25.6	-23.0
Portugal	0.5	1.9	0.8	0.2	0.1	0.3	0.0	0.1	0.7	0.3
Spain	9.0	23.5	30.3	27.0	39.9	61.1	35.6	50.4	43.0	14.7
Switzerland	7.3	4.0	7.8	4.5	5.1	4.0	4.5	5.5	4.3	19.1
Nordic countries, total	35.8	19.1	17.2	9.0	11.8	36.0	16.1	5.9	-10.7	2.9
Denmark	0.8	2.0	0.7	2.4	1.8	1.4	3.3	1.4	1.6	0.7
Finland	2.0	2.6	2.2	1.0	0.7	-2.9	-4.0	-0.6	-0.4	-2.3
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2
Norway	0.5	0.7	0.3	0.3	0.3	0.6	0.7	0.7	1.3	0.8
Sweden	32.4	13.8	14.1	5.3	9.0	36.9	16.0	4.4	-13.3	3.5
Central/eastern Europe, total	2.7	2.9	4.4	5.7	-9.0	7.7	16.2	5.0	-385.1	-573.7
Austria	1.7	2.3	2.5	2.0	3.2	3.2	1.9	3.6	5.6	3.6
Czech Republic	0.0	0.0	0.0	0.5	1.1	0.4	6.0	18.9	4.7	0.3
Czechoslovakia	0.3	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.2	0.3	0.6	0.5	0.5	0.2	0.3	0.2	0.2	0.1
Poland	0.4	0.2	0.2	1.4	0.5	0.6	1.5	0.8	0.9	0.2
Russia	0.0	0.0	0.6	0.9	-14.8	2.5	1.6	-20.8	-402.1	-582.5
Slovakia	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.3	1.3	0.0
Slovenia	0.0	0.0	0.0	0.4	0.2	0.6	4.8	1.9	4.3	4.5
Asia, total	867.5	916.9	1,002.8	962.1	1,040.0	741.0	771.3	970.2	860.6	840.9
China	3.5	5.6	4.2	3.2	2.9	12.4	4.4	2.1	8.8	-66.4
Hong Kong	1.1	1.3	2.1	2.5	3.7	4.2	2.7	2.3	5.6	3.1
India	2.5	1.8	2.2	2.5	1.9	2.9	3.5	1.8	0.9	0.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-3.

U.S. trade balance for advanced technology products: 1990–99
 (Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Indonesia	0.7	0.8	1.7	1.2	0.6	0.9	0.7	0.4	0.1	0.2
Japan	664.8	797.1	736.1	790.1	824.2	636.0	541.6	607.6	612.5	585.0
Malaysia	0.4	0.7	0.7	1.3	0.7	1.4	0.8	4.1	1.3	1.4
Philippines	0.1	0.3	0.4	0.6	0.2	1.8	0.5	1.8	0.4	0.3
Singapore	0.4	1.2	2.1	0.9	2.8	1.4	1.1	2.6	2.7	0.9
South Korea	110.7	78.0	83.2	115.3	81.8	64.9	164.5	189.3	128.4	208.0
Taiwan	82.8	29.2	169.8	44.0	120.6	12.5	50.5	157.1	99.2	108.1
Thailand	0.4	0.9	0.4	0.5	0.8	2.5	1.0	0.9	0.7	0.2
South America, total	5.0	4.0	3.6	5.4	5.8	6.7	9.5	8.5	13.6	9.1
Argentina	0.5	0.6	0.8	2.6	1.1	1.1	1.4	2.7	3.5	1.3
Brazil	3.9	2.5	2.5	2.2	4.4	4.0	5.6	5.1	9.3	7.3
Chile	0.5	0.8	0.2	0.6	0.3	1.4	0.3	0.2	0.6	0.2
Peru	0.1	0.0	0.1	0.1	0.0	0.2	2.2	0.5	0.2	0.3
Africa, total	0.6	0.9	0.7	0.8	0.6	0.5	1.1	0.6	0.4	0.6
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
Nigeria	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1
South Africa	0.6	0.8	0.5	0.7	0.6	0.5	0.7	0.5	0.4	0.4
All other countries	17.3	20.2	32.9	20.7	28.9	18.6	22.7	-22.7	-14.4	-26.3
Computer software										
Total	1,194.5	1,429.2	1,784.7	2,170.3	2,591.4	2,498.1	2,029.7	2,513.9	2,580.2	2,737.1
NAFTA partners, total	402.0	450.3	519.7	626.9	809.8	782.5	543.9	745.4	1,028.7	1,063.3
Canada	386.4	429.1	484.0	573.0	709.5	730.9	487.4	663.8	876.6	929.1
Mexico	15.6	21.2	35.7	53.9	100.3	51.7	56.5	81.5	152.1	134.2
Europe four, total	319.9	362.5	482.5	560.2	595.0	486.4	356.8	403.1	406.6	418.6
France	54.9	68.4	83.0	83.0	97.8	89.6	59.1	67.2	104.5	82.3
Germany	102.2	129.8	193.0	243.8	232.3	164.3	104.1	92.8	100.7	119.4
Italy	34.6	29.4	37.5	37.0	47.4	51.4	51.4	52.0	45.2	46.8
United Kingdom	128.2	134.9	169.0	196.3	217.5	181.0	142.2	191.2	156.2	170.1
Other western Europe, total	83.2	122.4	158.0	153.1	173.4	136.0	108.4	120.7	179.7	225.6
Belgium	13.1	19.6	30.3	42.6	52.6	37.0	16.3	20.0	18.5	33.6
Greece	1.6	2.5	4.3	5.4	6.6	6.2	0.9	2.4	3.8	3.7
Ireland	2.1	5.2	4.1	-0.9	-1.0	27.1	19.3	20.6	27.9	31.9
Netherlands	27.5	46.2	53.5	50.1	49.8	0.6	25.3	34.7	68.0	96.0
Portugal	2.5	3.9	6.1	6.4	5.2	5.7	5.1	10.2	4.9	7.3
Spain	18.5	28.6	34.4	24.5	27.8	28.1	21.9	16.3	24.2	27.9
Switzerland	18.0	16.4	25.4	24.9	32.5	31.3	19.5	16.5	32.5	25.1
Nordic countries, total	46.6	57.4	66.8	66.4	75.8	62.8	36.0	48.6	53.8	62.6
Denmark	6.1	18.6	18.2	17.7	18.8	13.2	8.3	11.3	11.3	13.9
Finland	5.3	4.5	5.7	6.7	8.6	9.1	-2.6	5.6	7.0	6.4
Iceland	0.2	0.5	0.4	0.5	0.4	0.3	0.4	0.4	1.5	1.1
Norway	9.3	8.9	9.4	13.2	14.9	10.9	7.2	8.3	10.3	11.7
Sweden	25.8	24.8	33.1	28.3	33.0	29.3	22.7	23.1	23.7	29.6
Central/eastern Europe, total	10.4	21.7	36.1	45.5	63.7	37.9	20.2	20.8	1.7	22.5
Austria	6.8	9.9	11.5	13.0	13.1	7.8	7.3	5.7	7.1	6.1
Czech Republic	0.0	0.0	0.0	7.0	12.7	5.5	2.4	2.7	2.5	2.3
Czechoslovakia	0.3	4.3	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	2.5	4.2	9.7	9.3	7.3	2.7	0.8	2.5	2.4	7.0
Poland	0.8	3.3	6.0	7.3	10.5	7.2	3.5	4.2	-13.1	4.4
Russia	0.0	0.0	2.0	7.5	16.5	9.1	3.5	4.3	0.7	0.4
Slovakia	0.0	0.0	0.0	0.1	1.2	2.2	0.5	0.5	0.7	0.5
Slovenia	0.0	0.0	0.4	1.4	2.4	3.5	2.2	0.9	1.4	1.7
Asia, total	213.9	242.7	293.5	396.4	452.0	559.9	568.9	708.0	467.7	547.7
China	6.9	6.3	12.6	21.2	23.8	21.0	15.5	16.3	26.3	22.5
Hong Kong	15.1	22.9	22.0	40.7	46.9	85.0	61.0	84.4	38.5	10.1
India	4.8	4.0	5.8	4.0	4.5	25.5	22.1	13.1	40.7	46.0
Indonesia	2.3	2.1	2.0	2.5	0.7	2.9	2.3	2.4	0.3	0.8
Japan	121.4	139.1	151.5	179.4	234.8	307.7	359.5	441.2	357.7	328.3
Malaysia	2.0	4.4	5.3	10.6	13.0	10.8	-39.3	-28.5	-78.9	-1.6
Philippines	3.8	0.8	1.4	3.2	2.9	2.6	5.9	5.5	2.7	5.4
Singapore	16.8	19.2	24.5	28.0	-6.3	-36.9	20.3	52.0	39.1	83.7
South Korea	23.5	30.0	37.0	62.7	85.1	89.1	91.1	104.0	46.8	36.8
Taiwan	14.4	12.2	27.7	39.2	35.7	33.4	14.7	8.1	-8.1	5.1
Thailand	2.8	1.5	3.9	4.7	10.8	18.9	15.8	9.4	2.6	10.6
South America, total	14.5	35.8	49.6	90.6	121.0	131.2	127.2	163.8	198.2	131.8
Argentina	2.0	18.1	17.7	33.7	29.7	15.4	20.1	24.3	35.1	30.0
Brazil	9.1	12.1	23.8	46.3	78.6	93.1	86.7	116.1	131.9	74.6
Chile	3.0	5.1	7.2	9.0	9.2	17.3	15.3	16.6	20.2	18.6
Peru	0.4	0.6	0.8	1.6	3.6	5.4	5.1	6.9	11.0	8.6
Africa, total	11.9	17.6	24.0	37.4	52.6	52.3	47.7	33.1	26.3	18.7
Kenya	0.0	0.1	0.1	0.6	0.3	0.5	0.3	0.2	0.5	0.1
Nigeria	0.5	1.1	0.5	0.8	1.0	0.9	0.2	0.3	0.8	0.6
South Africa	11.3	16.5	23.4	35.9	51.4	51.0	47.2	32.6	25.1	18.0
All other countries	92.0	118.8	154.3	193.9	248.0	249.0	220.6	270.4	217.4	246.2

NAFTA = North American Free Trade Agreement

SOURCE: Special tabulations provided by Foreign Trade Division, U.S. Bureau of Census.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All technologies										
Total	94,727.6	101,641.5	107,091.3	108,356.6	120,743.3	138,416.5	154,909.2	179,321.8	186,552.5	200,007.9
NAFTA partners, total	12,639.4	13,553.5	15,448.6	15,656.5	18,911.9	21,668.9	24,543.4	28,019.3	29,471.7	33,552.7
Canada	10,294.7	10,976.8	12,047.9	12,231.9	14,146.5	17,522.4	18,832.5	20,255.0	20,449.8	22,444.5
Mexico	2,344.6	2,576.7	3,400.7	3,424.6	4,765.4	4,146.5	5,710.9	7,764.3	9,021.9	11,108.2
Europe four, total	25,367.4	26,647.0	25,498.5	23,336.6	25,397.7	27,029.6	27,924.8	32,648.1	36,724.5	40,068.3
France	5,754.9	6,772.1	6,401.1	5,820.2	5,860.5	5,611.2	5,895.2	6,455.6	7,942.7	8,876.5
Germany	7,402.8	8,566.2	7,765.2	6,382.5	6,559.2	7,993.3	8,373.9	8,491.2	10,409.6	11,472.5
Italy	2,190.0	2,530.9	2,641.6	1,745.9	2,301.1	2,606.7	2,571.4	2,409.8	2,344.5	3,408.2
United Kingdom	10,019.6	8,777.8	8,690.6	9,388.0	10,676.9	10,818.5	11,084.3	15,291.5	16,027.6	16,311.1
Other western Europe, total	9,571.1	10,584.7	9,500.6	8,523.0	10,190.6	11,954.6	12,794.6	14,725.7	15,358.6	17,274.9
Belgium	1,313.5	1,477.1	1,143.3	1,026.9	1,179.9	1,168.4	1,487.2	1,725.8	2,141.5	1,722.5
Greece	87.5	310.3	152.9	207.4	139.2	666.1	175.1	258.8	671.0	384.5
Ireland	1,191.5	1,199.3	1,304.7	1,197.6	1,663.2	2,060.1	1,724.3	1,986.2	2,618.6	3,345.0
Netherlands	4,071.9	3,897.9	3,748.2	3,899.3	4,425.6	5,320.5	5,294.0	7,488.5	6,980.1	7,880.4
Portugal	247.9	185.0	349.1	145.3	442.1	196.9	221.0	254.6	258.6	307.3
Spain	1,702.5	1,603.4	1,512.9	1,048.9	1,184.5	1,237.2	1,266.7	1,157.2	1,077.3	2,099.1
Switzerland	956.2	1,911.6	1,289.6	997.4	1,156.2	1,305.3	2,626.5	1,854.6	1,611.6	1,536.0
Nordic countries, total	3,211.1	3,413.4	2,538.7	2,050.7	2,001.3	2,532.6	4,220.6	3,201.3	4,059.4	4,175.5
Denmark	519.7	666.2	569.0	338.4	396.4	547.1	657.1	575.6	818.0	749.1
Finland	436.4	366.9	235.9	309.3	355.2	441.0	1,528.7	746.1	961.0	784.2
Iceland	147.5	60.6	23.5	15.3	15.2	43.3	88.7	20.9	91.6	94.5
Norway	553.1	664.0	531.2	464.6	406.9	362.7	501.3	579.1	579.3	521.1
Sweden	1,554.4	1,655.6	1,179.0	923.1	827.5	1,138.6	1,444.8	1,279.7	1,609.5	2,026.6
Central/eastern Europe, total	458.0	600.3	1,175.5	1,279.0	1,396.3	1,341.8	1,107.4	1,843.6	2,558.8	2,027.9
Austria	303.6	355.5	451.3	360.6	314.6	445.1	356.6	535.4	523.3	606.8
Czech Republic	0.0	0.0	0.0	106.3	103.0	122.5	120.4	297.4	262.6	266.0
Czechoslovakia	17.8	37.8	246.1	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	24.2	130.4	136.3	250.3	112.9	71.5	72.6	142.6	125.1	113.4
Poland	112.4	76.7	203.0	253.8	186.9	203.6	182.3	418.8	191.3	266.6
Russia	0.0	0.0	129.8	273.3	631.7	446.6	307.5	384.0	1,356.6	663.5
Slovakia	0.0	0.0	0.0	10.3	14.7	13.8	23.9	35.8	62.3	75.9
Slovenia	0.0	0.0	8.9	24.4	32.6	38.6	44.1	29.7	37.6	35.5
Asia, total	30,470.3	33,160.3	36,812.9	41,871.3	47,677.1	57,846.2	64,945.9	73,876.7	68,997.0	73,460.1
China	1,241.7	1,707.5	2,849.7	3,401.6	3,083.5	2,470.5	3,164.6	3,737.7	6,055.5	5,007.2
Hong Kong	1,901.3	2,205.8	2,531.7	2,873.5	3,217.9	4,336.1	4,595.0	4,789.6	4,434.1	4,976.0
India	278.0	215.5	212.9	712.9	494.3	558.7	914.2	815.4	978.2	953.2
Indonesia	529.6	247.0	660.0	946.3	592.5	415.1	686.9	1,077.8	466.2	198.6
Japan	12,218.5	12,365.3	12,603.7	12,150.8	14,414.4	17,416.9	20,177.0	21,310.5	19,410.5	19,665.9
Malaysia	2,373.4	2,592.1	2,885.6	4,102.5	4,613.9	5,526.1	4,933.2	6,869.8	6,322.0	6,204.2
Philippines	922.5	762.5	917.5	1,427.7	1,614.2	2,304.4	2,981.3	4,022.5	4,119.8	4,678.0
Singapore	3,331.1	3,779.0	3,823.1	5,216.5	6,318.0	7,619.2	8,451.7	8,949.5	8,261.6	8,294.8
South Korea	3,521.1	4,072.0	4,181.2	4,646.0	6,207.4	8,414.3	9,465.6	9,851.9	7,487.7	11,491.0
Taiwan	2,862.9	3,522.8	4,323.2	5,128.8	5,458.1	6,357.2	6,881.8	9,267.9	9,043.4	9,571.0
Thailand	1,290.2	1,690.8	1,824.2	1,264.6	1,663.1	2,427.7	2,694.7	3,184.0	2,418.0	2,420.2
South America, total	2,180.7	2,837.4	3,116.2	2,865.4	3,233.2	4,101.2	5,067.3	6,689.8	7,277.4	7,386.1
Argentina	294.8	411.9	793.0	868.7	1,062.6	823.0	850.9	1,234.3	1,398.6	1,622.4
Brazil	1,523.3	2,055.9	1,817.2	1,604.0	1,698.2	2,564.4	3,284.6	4,333.6	4,511.5	4,631.8
Chile	293.4	307.1	433.7	307.5	345.3	508.1	730.0	783.7	1,033.3	850.1
Peru	69.3	62.5	72.3	85.1	127.0	205.7	201.8	338.3	334.0	281.8
Africa, total	492.3	718.7	591.1	692.5	485.2	584.3	582.0	725.0	1,334.4	647.7
Kenya	12.1	12.7	13.9	14.9	17.6	15.9	19.5	102.5	58.2	67.5
Nigeria	76.1	49.3	50.8	55.5	33.5	31.0	26.4	26.3	38.8	37.0
South Africa	404.2	656.8	526.4	622.0	434.1	537.4	536.1	596.3	1,237.4	543.2
All other countries	10,337.2	10,126.2	12,409.2	12,081.7	11,450.0	11,357.1	13,723.1	17,592.3	20,770.7	21,414.8
Biotechnology										
Total	661.2	706.0	745.8	892.7	1,029.2	1,055.5	1,197.4	1,479.6	1,469.3	1,594.2
NAFTA partners, total	78.7	92.1	108.2	133.7	152.6	125.3	135.2	160.8	201.0	235.8
Canada	71.2	84.2	97.4	119.3	133.3	111.1	112.1	122.8	168.4	204.0
Mexico	7.4	7.9	10.8	14.4	19.3	14.2	23.1	38.0	32.7	31.8
Europe four, total	144.9	146.4	164.1	205.0	197.5	235.3	313.4	354.6	284.5	263.1
France	19.0	18.5	16.0	20.0	25.8	34.3	54.2	67.4	54.0	42.8
Germany	89.9	77.7	85.4	97.6	110.3	142.5	167.1	180.3	123.8	122.6
Italy	17.1	28.3	23.1	29.2	21.3	15.6	13.0	12.5	20.3	22.3
United Kingdom	18.8	21.9	39.6	58.2	40.0	42.9	79.1	94.4	86.3	75.4
Other western Europe, total	148.6	178.6	177.8	258.3	295.4	319.3	361.0	470.5	506.4	478.5
Belgium	27.5	32.4	43.1	89.9	118.4	151.0	210.8	263.1	327.4	326.0
Greece	1.0	1.7	1.6	2.7	3.0	2.6	2.8	6.3	1.0	1.2
Ireland	48.9	79.3	60.1	81.2	94.9	83.6	48.8	104.3	24.4	16.8
Netherlands	33.0	32.0	42.5	48.6	36.9	40.4	68.5	57.9	89.6	73.7
Portugal	0.3	0.2	0.3	0.3	0.9	0.5	0.6	0.2	0.2	0.3
Spain	20.9	21.9	23.9	29.4	33.9	18.8	23.8	32.9	53.5	35.0
Switzerland	17.1	11.0	6.3	6.2	7.3	22.5	5.6	5.7	10.3	25.5

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nordic countries, total	34.7	33.6	35.1	41.8	32.8	30.0	17.2	17.9	18.0	13.0
Denmark	3.3	4.2	4.6	2.2	3.2	6.6	9.2	4.7	3.9	1.9
Finland	17.5	17.1	16.3	25.1	20.1	14.8	2.6	2.1	2.0	1.5
Iceland	0.1	0.2	0.3	0.2	0.0	0.0	0.2	0.2	0.1	0.2
Norway	0.7	2.0	3.3	5.3	4.2	3.1	1.3	6.8	6.4	4.4
Sweden	13.1	10.1	10.6	9.0	5.2	5.4	3.9	4.1	5.6	4.9
Central/eastern Europe, total	3.6	4.7	9.4	10.8	14.2	22.6	26.8	20.9	20.1	21.7
Austria	3.0	2.9	4.9	8.0	4.2	10.9	14.3	10.9	12.1	10.2
Czech Republic	0.0	0.0	0.0	0.0	0.9	0.4	1.0	5.2	1.6	2.3
Czechoslovakia	0.0	0.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.4	0.4	0.4	0.8	0.7	1.2	0.6	0.7	1.0	1.7
Poland	0.2	0.7	1.8	0.6	5.7	9.1	9.9	2.5	2.2	4.4
Russia	0.0	0.0	0.6	0.3	1.5	0.8	0.9	0.5	1.0	2.6
Slovakia	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.7	0.4
Slovenia	0.0	0.0	0.0	1.0	1.1	0.1	0.2	0.8	1.5	—
Asia, total	207.2	204.2	192.2	172.9	239.4	231.2	223.9	301.9	289.4	360.5
China	0.5	1.5	2.6	1.8	1.4	1.2	2.1	2.1	6.4	5.8
Hong Kong	3.8	4.1	4.4	4.1	9.6	6.6	8.0	17.0	9.4	9.2
India	0.8	0.8	1.2	0.7	1.5	1.8	3.0	3.4	5.5	4.8
Indonesia	1.5	2.4	2.1	2.6	3.4	4.1	4.2	4.5	0.7	2.5
Japan	178.5	176.6	153.8	139.6	189.5	173.0	157.8	218.9	218.9	269.6
Malaysia	1.2	1.1	1.9	2.5	2.7	3.0	2.6	4.2	3.1	3.9
Philippines	1.4	1.5	1.7	1.9	2.8	2.8	3.6	4.4	4.0	4.2
Singapore	1.6	2.0	2.0	1.9	3.2	3.6	3.9	3.4	4.1	3.7
South Korea	3.4	2.5	3.7	3.4	5.7	11.9	13.1	12.1	12.6	18.7
Taiwan	6.7	7.6	14.0	9.9	14.1	17.0	19.1	23.7	17.9	29.0
Thailand	7.8	4.0	4.8	4.6	5.5	6.1	6.5	8.1	6.9	9.0
South America, total	6.9	9.0	14.5	19.2	36.0	25.5	35.4	48.9	47.0	68.1
Argentina	2.3	4.8	8.8	10.1	14.5	7.1	8.5	13.9	15.4	13.1
Brazil	1.7	1.4	2.5	4.5	15.7	12.9	22.4	26.1	21.8	46.4
Chile	1.3	1.1	1.3	2.5	2.8	2.0	1.6	5.4	6.2	3.8
Peru	1.7	1.7	1.8	2.1	2.9	3.6	2.9	3.6	3.5	4.8
Africa, total	3.3	3.1	2.6	3.5	3.7	4.2	4.9	5.0	4.3	4.1
Kenya	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.0	—
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2
South Africa	3.3	3.0	2.6	3.4	3.6	4.1	4.8	4.7	4.1	3.8
All other countries	33.3	34.3	41.9	47.6	57.6	62.1	79.7	99.1	98.6	149.4

Life science technology

Total	5,049.1	5,344.3	5,781.1	6,021.6	6,798.5	8,568.3	9,190.3	10,155.9	10,173.4	10,753.9
NAFTA partners, total	727.3	688.6	721.2	763.4	880.3	906.2	950.4	1,027.5	1,017.7	1,263.1
Canada	581.3	509.0	510.5	521.3	632.9	732.2	764.8	788.0	754.1	918.8
Mexico	146.0	179.7	210.7	242.2	247.4	174.0	185.6	239.5	263.5	344.2
Europe four, total	1,493.3	1,637.6	1,804.7	1,688.2	1,890.6	2,392.8	2,417.4	2,552.4	2,627.4	2,801.0
France	285.1	314.9	386.5	343.6	418.1	495.3	535.6	513.6	540.4	609.2
Germany	653.0	773.3	807.9	825.0	896.0	1,020.9	1,076.2	1,137.0	1,105.3	1,166.5
Italy	221.1	227.2	250.9	179.5	173.0	270.1	247.3	279.4	355.9	363.9
United Kingdom	334.0	322.2	359.4	340.1	403.5	606.5	558.3	622.4	625.7	661.4
Other western Europe, total	616.1	702.2	747.0	758.7	837.8	1,075.5	1,146.1	1,391.0	1,770.6	1,697.5
Belgium	103.5	156.2	173.4	200.4	248.4	253.0	250.6	281.0	376.8	322.2
Greece	11.0	18.8	19.1	21.5	16.8	29.5	23.4	28.6	31.8	39.9
Ireland	62.7	48.5	52.8	60.0	62.3	84.1	85.9	79.8	165.9	119.5
Netherlands	255.4	279.1	287.5	273.8	303.4	394.7	466.3	641.1	812.6	768.1
Portugal	9.9	12.7	15.8	13.2	15.7	36.7	34.3	29.1	40.0	36.8
Spain	81.2	90.9	90.7	87.5	87.8	120.1	135.4	148.8	174.1	212.8
Switzerland	92.4	95.9	107.8	102.4	103.3	157.5	150.3	182.5	169.5	198.2
Nordic countries, total	161.5	159.8	156.6	149.6	159.6	186.9	214.2	252.5	328.9	317.4
Denmark	18.9	19.2	22.6	29.8	26.5	39.8	38.8	41.7	45.1	46.7
Finland	29.0	24.6	16.6	14.9	19.2	22.1	27.8	28.2	42.7	63.8
Iceland	0.9	1.6	0.8	2.0	0.8	2.2	1.1	1.3	2.1	2.9
Norway	27.9	22.4	18.8	22.4	18.5	25.8	31.6	26.2	33.9	30.8
Sweden	84.8	92.0	97.8	80.5	94.6	96.9	114.9	155.0	205.1	173.3
Central/eastern Europe, total	56.6	56.5	86.0	106.1	140.2	161.3	171.0	176.9	156.8	156.5
Austria	38.6	34.8	46.4	45.8	53.6	62.3	60.4	57.9	57.6	70.5
Czech Republic	0.0	0.0	0.0	7.0	10.0	11.5	11.3	12.4	13.4	13.8
Czechoslovakia	5.7	4.5	7.8	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	5.1	9.3	6.9	7.2	12.4	7.9	7.9	10.2	9.8	7.2
Poland	7.3	7.8	11.7	10.6	17.2	19.6	21.3	20.8	23.7	21.8
Russia	0.0	0.0	12.7	31.5	43.4	54.5	63.8	68.5	47.9	38.3
Slovakia	0.0	0.0	0.0	0.7	1.2	1.3	3.3	3.1	2.1	1.6
Slovenia	0.0	0.0	0.4	3.4	2.4	4.3	3.0	4.0	2.4	3.2
Asia, total	1,336.7	1,331.3	1,494.8	1,690.9	1,946.1	2,698.7	3,028.0	3,347.1	2,739.8	3,043.8
China	87.7	93.4	134.2	152.7	125.8	142.5	167.5	188.5	197.0	278.7
Hong Kong	50.8	70.4	91.4	113.7	121.4	149.8	174.5	210.6	223.4	201.5
India	62.2	39.2	42.0	49.5	53.3	73.1	81.7	113.0	92.0	97.5

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Indonesia	9.5	12.6	9.0	15.3	7.4	14.0	12.9	21.0	9.0	11.3
Japan	751.7	730.6	788.5	850.0	1,005.0	1,560.6	1,729.0	1,911.9	1,602.8	1,752.0
Malaysia	9.9	14.1	16.5	23.5	25.8	42.2	37.9	70.2	54.5	37.3
Philippines	9.3	8.7	9.5	12.9	13.9	17.1	20.9	32.0	19.1	28.6
Singapore	63.1	45.4	55.5	72.2	104.3	137.2	141.8	159.9	110.7	107.1
South Korea	168.4	198.8	184.7	229.4	314.7	350.4	406.0	386.0	208.5	273.3
Taiwan	102.0	89.8	124.9	125.1	124.2	138.9	173.8	183.2	190.4	212.2
Thailand	22.1	28.3	38.7	46.5	50.1	73.0	82.1	70.8	32.6	44.3
South America, total	137.7	177.0	206.5	241.2	288.9	361.4	410.3	445.5	495.4	474.9
Argentina	21.6	39.1	52.1	57.3	99.8	76.6	82.1	89.9	92.5	106.2
Brazil	94.0	112.2	114.0	133.4	141.6	229.6	265.8	289.2	341.2	306.9
Chile	15.1	21.4	33.5	41.3	36.3	37.2	44.3	44.4	45.0	45.5
Peru	7.0	4.4	6.9	9.3	11.2	18.0	18.1	22.1	16.7	16.2
Africa, total	43.1	45.8	45.9	42.2	42.2	58.2	61.0	61.3	62.7	56.0
Kenya	0.7	0.5	1.3	0.5	0.5	0.7	1.4	0.9	1.3	2.6
Nigeria	12.2	10.5	11.2	3.6	2.2	4.0	4.1	2.1	4.0	2.3
South Africa	30.2	34.8	33.5	38.1	39.5	53.6	55.4	58.3	57.4	51.1
All other countries	476.8	545.6	518.4	581.2	612.9	727.3	791.9	901.7	974.2	943.7
Optoelectronics										
Total	548.6	655.6	639.6	720.6	946.5	1,201.6	1,448.0	1,826.4	1,944.3	2,224.6
NAFTA partners, total	68.2	76.0	109.6	127.0	162.1	177.6	211.2	293.5	296.0	393.4
Canada	50.5	47.5	73.8	83.8	104.7	132.7	151.2	226.6	230.6	297.3
Mexico	17.8	28.5	35.8	43.2	57.4	44.8	60.0	67.0	65.5	96.1
Europe four, total	188.8	210.8	220.6	229.4	285.7	349.5	348.7	422.9	554.8	701.2
France	32.9	34.1	31.0	30.5	39.0	46.2	55.1	79.9	83.4	103.4
Germany	60.1	90.6	110.2	107.3	149.2	193.0	166.8	174.6	190.0	281.1
Italy	25.0	23.5	22.2	19.7	20.5	24.1	20.9	35.2	52.7	75.4
United Kingdom	70.8	62.7	57.3	71.8	77.0	86.2	105.9	133.2	228.8	241.4
Other western Europe, total	40.4	56.1	64.9	58.1	44.9	85.9	87.3	109.1	123.1	112.8
Belgium	3.8	4.3	9.5	4.6	7.4	13.8	16.4	13.5	24.0	13.4
Greece	0.4	0.6	1.1	0.4	0.4	0.9	1.3	0.9	1.8	1.9
Ireland	1.5	6.4	5.1	15.3	6.4	8.8	7.1	16.5	10.4	7.4
Netherlands	18.5	21.9	19.9	22.0	14.2	35.8	32.6	44.0	53.9	56.8
Portugal	0.5	1.7	0.9	1.6	1.3	1.6	1.5	2.3	1.6	1.6
Spain	7.1	8.7	20.0	6.7	7.3	15.8	17.8	18.9	13.4	16.2
Switzerland	8.7	12.5	8.4	7.4	8.1	9.1	10.7	13.0	18.1	15.3
Nordic countries, total	19.2	13.3	14.0	18.5	26.6	22.6	31.7	27.3	42.4	40.8
Denmark	4.2	2.2	2.8	3.5	4.4	3.3	4.9	4.2	5.2	4.4
Finland	5.2	3.1	3.1	3.0	3.2	3.4	4.6	6.9	8.0	5.9
Iceland	0.0	0.1	0.0	0.9	0.1	0.1	0.1	0.2	0.5	0.4
Norway	2.4	1.6	2.1	5.1	7.3	5.9	5.0	2.7	4.2	4.6
Sweden	7.4	6.3	5.9	6.0	11.6	9.9	17.1	13.3	24.6	25.5
Central/eastern Europe, total	3.5	5.1	5.8	5.2	9.0	11.1	8.8	13.8	15.1	9.4
Austria	3.0	3.9	5.1	3.8	4.9	6.5	5.3	9.1	7.1	2.0
Czech Republic	0.0	0.0	0.0	0.1	0.5	0.9	0.6	0.8	1.4	1.5
Czechoslovakia	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.2	0.6	0.2	0.4	0.5	0.5	0.7	0.6	1.1	1.0
Poland	0.1	0.6	0.0	0.3	0.3	1.0	0.6	1.1	2.7	3.5
Russia	0.0	0.0	0.2	0.4	2.2	1.4	0.6	1.4	1.4	0.5
Slovakia	0.0	0.0	0.0	0.1	0.0	0.1	0.4	0.1	0.2	0.1
Slovenia	0.0	0.0	0.1	0.1	0.6	0.6	0.7	0.8	1.2	0.7
Asia, total	162.5	215.9	142.1	179.0	317.7	444.8	650.9	803.4	745.7	789.9
China	3.6	4.0	8.7	7.7	5.5	7.4	10.2	13.1	44.6	33.4
Hong Kong	7.5	11.4	14.3	18.0	17.9	16.5	18.4	27.5	41.4	54.9
India	1.9	1.0	2.1	2.8	6.9	12.7	7.5	4.7	9.5	12.9
Indonesia	0.4	0.4	1.5	1.2	1.0	2.0	8.9	2.3	1.0	0.6
Japan	111.7	142.2	57.9	78.5	163.6	181.6	319.6	330.9	296.7	305.7
Malaysia	3.7	3.4	2.7	4.8	5.7	14.1	13.2	29.2	26.5	14.8
Philippines	2.4	0.7	0.6	1.3	0.9	3.5	5.9	24.7	16.8	21.6
Singapore	7.0	9.8	13.8	22.6	38.6	74.1	85.7	122.3	94.9	62.5
South Korea	10.9	23.7	28.5	28.7	48.4	69.9	75.4	89.7	39.1	68.1
Taiwan	11.9	16.8	10.4	11.7	26.4	56.0	95.4	149.3	168.4	208.3
Thailand	1.5	2.5	1.5	1.7	2.8	7.0	10.8	9.7	6.7	7.3
South America, total	8.8	6.8	9.5	15.1	20.6	29.8	35.5	51.0	43.0	31.5
Argentina	1.3	2.3	4.4	6.0	6.9	6.7	6.5	8.7	7.1	6.5
Brazil	6.1	3.1	3.2	6.3	9.7	18.1	22.2	34.2	30.2	20.7
Chile	0.8	1.3	1.3	2.4	3.3	4.2	3.9	4.5	3.8	3.1
Peru	0.6	0.2	0.6	0.4	0.8	0.8	2.8	3.5	1.9	1.1
Africa, total	3.1	6.0	4.1	4.2	7.5	7.2	5.9	8.8	14.6	9.8
Kenya	0.4	0.2	0.2	0.2	0.1	0.2	0.2	0.7	0.3	0.2
Nigeria	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2	0.3
South Africa	2.7	5.8	3.9	4.1	7.2	7.0	5.5	8.1	14.1	9.3
All other countries	54.0	65.5	69.1	84.0	72.2	73.1	68.0	96.7	109.6	135.9

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Information and communication										
Total	31,375.0	30,726.3	32,569.2	34,198.8	39,859.3	47,890.5	52,780.1	61,164.6	58,201.8	61,081.0
NAFTA partners, total	5,510.0	5,607.2	6,393.6	7,032.7	8,197.7	8,883.0	10,716.7	12,686.6	13,161.3	14,246.4
Canada	4,353.9	4,433.6	4,958.8	5,333.4	5,975.3	7,064.3	8,071.2	9,050.3	8,897.2	9,333.6
Mexico	1,156.1	1,173.7	1,434.8	1,699.3	2,222.4	1,818.7	2,645.6	3,636.3	4,264.2	4,912.8
Europe four, total	8,694.5	7,882.8	7,780.3	7,454.3	8,591.6	10,331.8	10,683.0	11,066.1	10,604.7	10,840.3
France	1,490.7	1,353.6	1,377.7	1,305.9	1,598.7	2,084.5	2,186.9	1,982.0	1,720.5	1,702.0
Germany	2,909.1	2,712.0	2,677.9	2,402.3	2,554.9	3,242.0	3,511.4	3,093.2	3,124.7	3,656.5
Italy	803.4	774.0	685.8	566.0	584.6	662.5	704.3	720.8	639.7	667.4
United Kingdom	3,491.3	3,043.2	3,038.9	3,180.0	3,853.4	4,342.7	4,280.4	5,270.1	5,119.8	4,814.5
Other western Europe, total	3,855.0	3,706.1	3,827.5	3,830.3	4,142.0	4,915.9	5,016.8	6,606.9	7,229.8	7,951.8
Belgium	455.6	437.4	446.1	370.9	351.3	364.6	426.0	482.7	570.8	560.8
Greece	24.3	36.6	41.7	49.5	32.4	47.6	41.3	40.3	73.5	115.8
Ireland	624.1	546.1	576.4	528.5	878.4	1,184.2	999.9	1,152.1	1,541.9	1,938.2
Netherlands	1,923.9	1,806.2	1,852.0	2,057.1	1,968.3	2,141.6	2,387.4	3,992.8	4,084.6	4,361.3
Portugal	66.5	72.3	59.6	48.5	73.4	71.3	69.1	102.1	80.8	51.1
Spain	339.9	402.0	436.9	370.9	408.1	583.1	573.9	404.4	403.0	448.0
Switzerland	420.6	405.5	414.8	404.9	430.2	523.5	519.3	432.6	475.2	476.6
Nordic countries, total	776.8	755.4	773.4	675.8	655.3	881.9	961.2	907.2	822.8	807.4
Denmark	137.0	145.6	153.0	146.3	144.8	202.1	218.7	196.6	164.9	162.6
Finland	117.1	92.6	82.6	85.8	86.5	140.3	160.0	160.4	188.1	226.4
Iceland	3.4	15.7	16.0	5.3	8.6	36.4	23.3	14.1	16.4	18.9
Norway	136.9	124.1	151.8	137.1	127.0	133.0	151.2	206.9	124.5	129.3
Sweden	382.4	377.4	369.9	301.2	288.4	370.1	407.9	329.1	328.8	270.2
Central/eastern Europe, total	162.7	249.9	381.2	522.2	483.1	546.2	543.5	660.1	899.1	906.3
Austria	129.6	158.8	135.8	131.3	141.7	152.4	150.6	140.4	138.3	147.0
Czech Republic	0.0	0.0	0.0	64.4	52.8	76.1	74.7	63.3	80.1	76.9
Czechoslovakia	8.5	23.0	70.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	11.3	17.3	29.1	66.5	46.5	44.7	45.7	116.2	96.0	72.5
Poland	13.3	50.9	53.4	63.1	57.5	65.2	69.4	92.8	112.9	188.6
Russia	0.0	0.0	86.4	177.5	160.1	180.8	170.5	216.9	396.6	331.2
Slovakia	0.0	0.0	0.0	4.9	8.2	9.0	13.3	15.2	53.7	70.5
Slovenia	0.0	0.0	6.4	14.6	16.3	18.0	19.3	15.3	21.5	19.8
Asia, total	8,307.7	8,206.8	8,768.1	9,222.1	11,262.3	14,849.6	16,890.1	18,707.4	15,146.4	16,013.5
China	232.5	229.3	398.9	664.7	685.1	851.4	770.5	791.7	1,453.2	1,224.2
Hong Kong	452.2	514.0	691.2	854.8	1,035.9	1,674.5	1,551.4	2,196.1	1,749.1	1,807.7
India	89.3	83.2	83.1	88.5	129.4	211.5	254.3	238.6	257.5	273.1
Indonesia	88.8	83.6	162.3	101.9	73.3	183.6	274.3	407.6	75.1	50.8
Japan	4,232.5	4,202.1	4,095.5	3,917.7	4,542.7	5,559.5	6,784.4	6,863.1	5,494.7	5,656.6
Malaysia	165.3	217.8	252.2	261.3	436.9	715.2	791.6	1,050.7	831.1	765.5
Philippines	83.2	92.6	124.6	137.4	213.8	272.3	316.0	399.6	299.2	256.4
Singapore	1,106.5	1,008.2	1,017.0	1,195.6	1,477.1	2,245.8	2,601.5	2,729.2	2,252.3	2,348.8
South Korea	827.0	829.9	754.6	894.2	1,482.6	1,768.0	2,055.6	2,102.0	1,089.0	1,910.0
Taiwan	859.6	698.6	866.3	813.2	767.4	800.8	975.1	1,370.5	1,302.6	1,306.4
Thailand	170.8	247.5	322.3	292.8	418.1	567.0	515.4	558.4	342.6	414.0
South America, total	621.6	783.4	1,146.7	1,390.1	2,078.9	2,252.2	2,857.1	3,819.6	3,708.4	3,744.0
Argentina	150.7	260.1	386.0	493.9	742.9	499.7	619.3	883.2	901.3	1,016.7
Brazil	349.7	374.0	557.7	662.9	1,027.1	1,377.2	1,808.0	2,279.2	2,093.8	1,989.2
Chile	90.1	117.3	156.1	178.1	214.4	252.0	284.2	398.1	464.5	549.2
Peru	31.1	32.1	46.9	55.3	94.5	123.4	145.7	259.1	248.8	188.9
Africa, total	159.8	169.3	180.6	224.6	191.1	233.4	216.3	267.8	350.6	246.5
Kenya	4.6	4.8	3.1	3.9	5.7	6.9	4.8	6.7	8.2	7.9
Nigeria	15.1	16.5	25.1	40.7	11.9	16.4	13.5	16.3	20.4	25.1
South Africa	140.1	147.9	152.4	179.9	173.5	210.1	198.1	244.8	322.0	213.6
All other countries	3,286.9	3,365.4	3,317.8	3,846.9	4,257.2	4,996.3	4,895.2	6,442.9	6,278.7	6,324.6
Electronics										
Total	7,392.3	8,709.3	9,753.0	11,814.5	16,098.6	31,223.4	35,079.5	37,946.2	38,155.6	47,328.5
NAFTA partners, total	1,699.2	2,240.7	2,579.2	2,832.8	4,127.6	6,770.1	7,404.8	8,107.8	8,341.6	10,298.4
Canada	1,400.6	1,976.1	2,239.7	2,387.6	3,228.9	5,518.5	5,279.6	5,238.2	5,340.8	5,861.2
Mexico	298.6	264.6	339.4	445.1	898.7	1,251.6	2,125.2	2,869.6	3,000.8	4,437.2
Europe four, total	1,705.3	1,884.5	1,979.8	2,452.8	3,064.9	4,056.8	3,484.4	3,636.7	3,567.7	3,945.0
France	357.7	336.2	276.9	290.3	318.4	521.8	457.5	595.7	720.1	743.9
Germany	445.8	487.9	440.9	523.8	631.9	871.8	801.7	730.3	855.2	943.1
Italy	181.4	225.8	187.0	186.5	237.9	328.1	418.5	533.9	471.2	513.8
United Kingdom	720.4	834.5	1,075.0	1,452.3	1,876.7	2,335.0	1,806.8	1,776.8	1,521.2	1,744.2
Other western Europe, total	367.2	388.3	379.9	444.8	660.0	886.8	1,147.4	1,444.6	1,095.5	1,268.8
Belgium	38.6	32.6	30.3	42.9	58.0	64.4	45.1	65.7	61.0	57.2
Greece	0.5	1.6	5.4	1.3	1.1	2.1	2.6	1.9	2.7	5.2
Ireland	99.4	93.0	105.9	162.2	273.6	380.7	273.4	247.3	335.9	394.3
Netherlands	141.8	160.8	126.1	146.9	213.2	274.3	659.4	925.4	501.4	549.0
Portugal	11.1	10.4	11.4	6.1	8.4	18.0	33.2	45.3	42.3	100.0
Spain	28.6	38.7	42.4	36.1	41.1	54.7	58.0	59.9	68.5	73.0
Switzerland	47.1	51.3	58.4	49.3	64.8	92.5	75.7	99.1	83.6	90.1

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nordic countries, total	72.6	92.3	118.1	162.2	239.0	300.3	345.4	401.8	373.0	388.2
Denmark	13.6	15.3	16.3	24.3	40.2	51.4	49.1	53.9	48.8	61.2
Finland	14.0	14.0	19.9	30.1	47.3	56.6	58.6	59.1	86.0	94.4
Iceland	0.1	0.2	0.2	0.4	0.5	0.8	0.7	1.5	1.1	2.4
Norway	11.3	17.4	20.2	22.6	31.9	34.8	32.8	33.2	41.5	37.5
Sweden	33.6	45.5	61.5	84.8	119.0	156.7	204.2	254.2	195.7	192.7
Central/eastern Europe, total	15.3	22.4	23.0	35.7	58.4	74.4	77.0	70.9	65.4	70.4
Austria	13.9	18.8	14.6	21.7	35.9	43.8	44.5	41.0	26.3	28.8
Czech Republic	0.0	0.0	0.0	2.3	4.1	8.3	7.6	6.0	12.4	16.1
Czechoslovakia	0.2	0.9	3.6	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.5	1.0	0.7	2.8	2.8	2.8	4.2	3.5	2.0	9.4
Poland	0.8	1.6	1.9	2.7	5.1	5.7	5.2	5.8	11.0	6.7
Russia	0.0	0.0	2.0	5.3	8.6	11.8	9.8	11.6	12.7	7.8
Slovakia	0.0	0.0	0.0	0.2	0.6	0.5	0.6	0.9	0.3	0.3
Slovenia	0.0	0.0	0.3	0.8	1.4	1.5	5.0	2.0	0.7	1.2
Asia, total	3,183.1	3,726.9	4,334.2	5,443.3	7,355.3	18,280.3	21,609.4	23,405.7	23,684.4	29,816.6
China	20.8	17.2	21.7	33.1	25.1	73.6	160.2	190.6	509.6	759.2
Hong Kong	424.6	464.9	669.5	795.6	892.2	1,536.5	1,821.2	1,804.8	1,660.8	2,338.9
India	44.0	28.8	27.8	26.4	35.2	75.8	57.1	47.9	52.4	43.6
Indonesia	1.2	6.4	1.9	1.6	3.6	25.5	130.1	106.4	80.9	79.4
Japan	921.1	1,099.9	1,048.3	1,254.0	1,817.8	3,454.3	4,216.8	3,907.9	3,216.2	3,648.5
Malaysia	363.8	302.3	327.3	317.6	426.9	3,731.7	3,285.5	3,668.2	3,783.4	4,677.3
Philippines	76.8	87.5	94.4	125.2	134.8	1,476.3	2,104.5	2,958.0	3,504.8	4,169.1
Singapore	553.7	617.2	809.3	1,315.3	1,901.2	2,890.3	3,415.8	3,306.3	3,124.4	3,100.4
South Korea	225.5	277.4	286.9	452.4	555.8	2,066.3	2,653.8	3,141.2	3,531.5	6,070.6
Taiwan	516.3	780.4	998.5	1,058.2	1,463.0	2,297.6	2,941.9	3,213.0	3,079.7	3,656.3
Thailand	35.3	45.0	48.6	64.1	99.7	652.5	822.5	1,061.5	1,140.8	1,273.2
South America, total	127.1	126.7	110.3	118.1	158.6	231.6	290.1	366.1	387.0	710.5
Argentina	10.0	14.1	26.7	18.0	22.8	14.5	11.6	28.8	22.5	33.4
Brazil	112.6	108.3	77.5	92.3	123.8	199.2	261.7	317.6	347.6	643.7
Chile	4.0	3.7	5.3	6.8	9.6	14.4	12.7	11.8	12.8	24.7
Peru	0.5	0.6	0.8	1.1	2.5	3.5	4.2	7.9	4.1	8.7
Africa, total	16.4	21.5	15.1	22.3	23.6	31.0	22.7	19.3	19.3	21.7
Kenya	0.0	0.1	0.1	0.1	0.7	0.0	0.6	2.1	0.5	1.1
Nigeria	0.8	0.6	0.3	1.8	0.8	0.8	0.2	0.4	0.1	0.4
South Africa	15.6	20.8	14.8	20.3	22.1	30.2	21.9	16.8	18.7	20.3
All other countries	206.0	206.0	213.4	302.4	411.2	592.1	698.3	493.3	621.6	808.9

Flexible manufacturing

Total	3,095.7	3,251.4	3,412.6	4,039.0	5,191.0	7,469.6	8,583.6	9,126.5	7,295.2	8,864.0
NAFTA partners, total	540.2	542.5	617.7	618.6	793.9	835.2	905.3	1,210.8	1,148.1	1,232.3
Canada	408.8	383.1	380.8	412.3	580.1	650.0	664.5	858.4	774.8	778.8
Mexico	131.3	159.3	236.9	206.3	213.8	185.3	240.7	352.4	373.3	453.4
Europe four, total	719.7	701.0	726.5	808.5	941.1	1,320.3	1,349.2	1,203.7	1,070.6	1,244.8
France	139.0	164.6	177.6	221.8	269.6	316.7	380.7	332.8	228.8	262.3
Germany	265.1	267.8	225.3	237.7	254.6	500.8	428.9	344.0	370.5	403.6
Italy	110.5	97.6	121.2	112.6	146.1	190.1	158.8	116.3	139.7	236.6
United Kingdom	205.1	171.1	202.4	236.4	270.8	312.6	380.8	410.7	331.6	342.4
Other western Europe, total	209.1	209.9	234.1	289.2	312.2	463.3	456.6	488.7	623.8	532.9
Belgium	33.8	26.2	34.4	20.0	32.5	41.7	49.3	45.1	49.5	47.1
Greece	2.3	2.6	4.2	3.7	1.3	2.8	4.0	3.1	3.4	2.4
Ireland	12.7	14.6	27.7	95.5	82.9	77.3	55.5	111.2	211.6	120.5
Netherlands	80.1	69.1	85.2	88.8	107.8	222.7	189.7	174.6	227.3	253.9
Portugal	4.6	5.7	6.8	6.3	7.4	5.3	7.5	2.7	4.2	8.0
Spain	30.2	34.3	35.3	28.6	29.3	35.4	45.5	57.4	25.7	35.6
Switzerland	45.4	57.4	40.4	46.2	51.0	78.0	105.2	94.7	102.3	65.4
Nordic countries, total	39.9	43.2	43.2	51.6	59.0	73.9	82.6	86.4	78.2	77.3
Denmark	7.6	7.8	6.6	7.0	8.9	10.7	17.7	11.3	10.0	9.4
Finland	7.5	6.4	7.4	5.9	10.2	18.8	20.7	22.7	13.6	21.6
Iceland	0.3	0.6	0.6	0.9	0.7	0.5	0.9	1.2	0.4	0.3
Norway	6.1	8.1	11.2	14.0	8.2	12.2	10.0	15.5	11.9	8.7
Sweden	18.4	20.3	17.4	23.7	31.0	31.7	33.3	35.7	42.3	37.3
Central/eastern Europe, total	17.5	16.0	28.3	56.1	84.9	71.8	74.9	64.3	65.2	69.5
Austria	12.4	12.1	20.9	25.4	29.8	35.7	35.6	25.4	12.4	22.0
Czech Republic	0.0	0.0	0.0	2.8	2.9	7.7	5.5	4.0	14.4	12.9
Czechoslovakia	2.2	0.5	1.2	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.8	1.4	0.7	1.7	4.9	5.6	2.3	2.6	6.7	6.5
Poland	2.2	1.9	2.5	2.4	2.4	1.7	3.2	6.5	6.5	5.8
Russia	0.0	0.0	2.6	20.5	38.0	14.1	22.5	22.8	23.2	17.3
Slovakia	0.0	0.0	0.0	2.5	2.5	0.4	0.3	0.4	1.6	2.1
Slovenia	0.0	0.0	0.4	0.7	4.5	6.6	5.5	2.6	0.4	2.9
Asia, total	1,276.0	1,465.2	1,427.4	1,838.4	2,615.3	4,229.6	5,210.6	5,430.3	3,703.8	4,959.3
China	60.8	89.0	107.1	156.3	174.1	152.7	200.4	167.4	187.7	143.2
Hong Kong	35.8	42.7	60.6	87.6	107.3	109.9	132.9	142.6	95.9	94.0
India	35.6	18.1	17.4	30.0	39.0	32.9	58.4	29.3	28.8	23.8

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Indonesia	4.3	5.4	11.7	9.8	8.1	14.9	16.2	15.1	8.0	7.4
Japan	593.1	661.4	478.2	544.9	819.1	1,291.5	1,608.5	1,425.3	1,032.2	1,293.3
Malaysia	57.4	54.9	75.6	113.9	117.8	189.2	196.9	295.8	216.3	132.4
Philippines	40.9	37.3	30.4	54.1	47.7	105.3	89.5	168.9	202.1	83.1
Singapore	100.5	94.1	127.2	170.2	172.1	313.8	402.2	488.8	345.6	481.8
South Korea	208.0	289.0	294.5	382.0	709.9	1,324.3	1,559.4	1,175.0	476.4	957.9
Taiwan	115.5	147.4	194.1	254.3	367.8	630.4	866.5	1,456.8	1,061.1	1,701.0
Thailand	24.2	25.9	30.6	35.3	52.3	64.7	79.7	65.4	49.6	41.3
South America, total	46.6	46.9	43.2	69.0	78.1	108.1	126.5	218.7	184.9	166.2
Argentina	4.6	8.7	11.2	17.1	27.4	20.5	22.0	26.0	25.8	29.8
Brazil	33.0	29.1	23.3	37.1	34.3	66.5	79.5	162.6	127.4	104.9
Chile	7.5	6.8	7.3	12.0	12.7	15.7	17.6	22.6	24.1	18.8
Peru	1.4	2.3	1.4	2.9	3.6	5.4	7.4	7.5	7.7	12.6
Africa, total	13.2	18.8	14.5	13.4	14.3	16.2	27.5	27.3	23.3	21.7
Kenya	0.2	0.8	0.5	0.2	0.8	0.5	0.7	0.6	0.2	0.9
Nigeria	0.7	1.6	1.9	1.1	2.3	2.2	2.8	1.2	1.4	2.7
South Africa	12.2	16.4	12.2	12.1	11.2	13.5	24.0	25.6	21.7	18.1
All other countries	233.5	208.1	277.8	294.4	292.4	351.2	350.6	396.2	397.3	560.0
Advanced materials										
Total	6,403.0	6,226.1	7,153.6	8,404.2	10,406.2	4,519.5	3,013.4	3,320.7	1,290.2	1,624.0
NAFTA partners, total	976.6	975.3	1,236.3	1,153.1	1,291.3	641.5	521.8	533.0	296.0	472.9
Canada	800.0	777.2	989.0	904.8	933.4	192.7	351.4	381.7	240.0	400.1
Mexico	176.6	198.1	247.3	248.3	357.9	448.8	170.3	151.3	55.9	72.8
Europe four, total	303.9	302.0	346.8	335.6	387.9	303.5	334.3	328.8	167.9	335.1
France	69.7	82.4	63.3	102.0	117.1	62.4	73.0	94.0	57.5	68.5
Germany	75.6	52.9	94.7	59.6	65.8	68.3	80.6	75.8	48.3	141.3
Italy	46.5	53.8	75.3	38.9	50.4	26.9	27.3	20.6	16.4	38.6
United Kingdom	112.1	112.9	113.5	135.1	154.6	145.9	153.3	138.5	45.6	86.8
Other western Europe, total	91.0	86.8	88.7	99.3	114.3	99.4	114.3	101.3	57.2	73.5
Belgium	2.7	1.7	2.3	2.8	3.8	4.6	5.5	6.8	6.6	6.1
Greece	0.2	0.5	0.1	0.2	0.2	0.3	1.4	1.6	0.1	—
Ireland	41.0	37.0	26.4	46.7	47.9	35.6	42.0	44.9	17.0	17.2
Netherlands	10.5	17.8	20.1	12.7	12.3	14.9	25.1	16.0	11.2	26.3
Portugal	18.4	19.8	21.8	20.2	16.8	12.7	2.3	0.8	0.5	0.2
Spain	15.1	6.6	10.1	7.5	24.1	21.9	23.2	20.9	17.2	19.3
Switzerland	3.1	3.4	7.9	9.2	9.1	9.3	14.8	10.2	4.6	4.4
Nordic countries, total	10.0	10.4	19.1	17.9	20.3	28.1	44.3	36.0	13.5	14.8
Denmark	1.3	1.8	4.4	3.3	3.7	4.8	7.1	6.3	1.3	0.7
Finland	2.3	2.4	3.7	1.9	2.0	5.0	6.2	4.4	1.1	1.6
Iceland	1.2	1.8	0.7	1.2	0.4	0.7	0.4	0.1	0.1	0.1
Norway	1.1	2.0	6.4	6.7	6.1	5.4	13.1	7.2	6.8	6.6
Sweden	4.1	2.5	4.0	4.9	8.1	12.2	17.4	18.1	4.2	5.8
Central/eastern Europe, total	1.0	1.7	10.5	20.6	15.2	19.2	36.2	29.1	18.4	17.4
Austria	0.9	1.3	5.9	7.9	3.2	8.0	9.6	7.1	7.1	6.0
Czech Republic	0.0	0.0	0.0	0.7	1.6	1.5	2.7	4.6	1.1	0.3
Czechoslovakia	0.0	0.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.1	0.1	0.1	0.2	1.4	0.6	2.1	0.4	0.1	—
Poland	0.0	0.1	3.5	9.1	6.6	5.2	9.9	8.0	4.0	1.3
Russia	0.0	0.0	0.1	0.4	1.7	3.6	7.0	5.9	4.6	9.5
Slovakia	0.0	0.0	0.0	1.8	0.6	0.1	4.7	3.1	1.4	0.1
Slovenia	0.0	0.0	0.1	0.5	0.1	0.1	0.2	0.1	0.1	0.1
Asia, total	4,952.6	4,798.7	5,363.6	6,654.6	8,461.2	3,320.1	1,795.4	2,074.6	600.5	551.5
China	8.4	4.2	21.1	25.7	44.4	71.0	100.7	153.9	34.2	21.7
Hong Kong	339.0	307.4	304.4	387.4	562.0	304.4	99.5	88.6	101.4	62.5
India	1.9	1.5	3.2	2.3	4.3	4.3	14.9	5.4	3.1	4.2
Indonesia	12.2	6.5	14.4	29.1	37.3	54.1	5.5	4.5	0.2	0.9
Japan	437.1	498.4	574.1	736.7	761.2	614.5	529.3	519.4	301.8	264.8
Malaysia	1,326.0	1,329.1	1,382.1	1,854.9	2,603.1	534.0	257.9	297.1	13.0	19.1
Philippines	505.9	491.8	591.6	694.5	1,142.1	230.2	145.3	301.8	2.2	3.5
Singapore	660.5	690.1	814.7	953.6	766.4	427.2	207.4	167.1	60.6	71.6
South Korea	773.5	630.1	787.4	872.1	1,148.7	315.6	129.8	141.1	32.7	52.4
Taiwan	405.3	389.0	507.0	589.5	701.1	400.8	139.3	180.3	47.0	50.2
Thailand	482.8	450.7	363.7	508.6	690.7	364.0	165.7	215.4	4.4	0.7
South America, total	15.3	9.7	24.9	39.6	35.9	28.7	55.7	95.7	53.5	61.9
Argentina	2.0	1.9	6.6	17.2	8.3	5.4	6.3	8.2	7.1	8.9
Brazil	12.9	7.2	13.2	17.0	21.5	19.2	43.0	81.6	42.6	50.4
Chile	0.3	0.5	4.7	5.4	4.9	3.2	5.2	5.1	3.3	1.5
Peru	0.2	0.2	0.3	0.1	1.1	0.9	1.2	0.8	0.5	1.0
Africa, total	1.3	1.3	1.8	2.4	3.1	3.6	4.9	3.2	11.2	6.1
Kenya	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	—
Nigeria	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	—
South Africa	1.2	1.3	1.8	2.3	3.1	3.6	4.7	3.1	11.2	6.1
All other countries	51.2	40.1	61.9	81.2	77.0	75.4	106.5	119.1	72.0	90.9

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Aerospace										
Total	36,155.0	41,220.4	41,810.6	36,796.4	34,500.1	30,517.5	37,746.6	47,677.6	61,269.2	60,062.2
NAFTA partners, total	2,404.7	2,521.6	2,822.8	2,024.1	2,138.9	2,231.0	2,757.5	2,903.8	3,627.6	4,005.5
Canada	2,022.6	2,001.3	2,014.1	1,578.2	1,515.7	2,091.0	2,594.6	2,642.7	2,902.9	3,433.1
Mexico	382.1	520.3	808.7	445.9	623.2	140.0	162.9	261.1	724.7	572.4
Europe four, total	11,112.0	12,618.4	11,104.9	9,000.7	8,844.4	6,878.9	8,013.3	12,071.7	16,699.7	18,849.2
France	3,232.3	4,327.7	3,861.0	3,355.8	2,900.0	1,869.0	2,017.5	2,659.4	4,343.8	5,158.4
Germany	2,422.1	3,407.7	2,596.1	1,595.8	1,399.5	1,528.4	1,792.2	2,443.1	4,223.0	4,388.6
Italy	708.3	1,028.1	1,199.5	536.8	984.8	1,005.9	896.6	592.0	563.8	1,398.3
United Kingdom	4,749.3	3,854.8	3,448.2	3,512.2	3,560.2	2,475.6	3,307.1	6,377.2	7,569.1	7,903.9
Other western Europe, total	3,968.1	4,902.2	3,529.8	2,345.2	3,336.3	3,635.3	3,985.0	3,657.5	3,486.5	4,555.8
Belgium	609.0	745.8	352.5	214.2	270.8	206.1	422.0	501.8	681.6	340.6
Greece	44.5	242.3	73.1	119.3	73.1	558.2	92.9	166.0	526.1	169.6
Ireland	294.2	363.2	426.0	172.6	181.8	165.9	176.9	197.5	270.8	681.6
Netherlands	1,527.4	1,400.8	1,169.7	1,084.5	1,627.0	2,050.1	1,288.5	1,449.2	1,004.7	1,495.7
Portugal	133.1	49.6	213.9	41.2	310.8	40.0	49.7	60.2	78.8	99.1
Spain	1,121.6	933.5	731.6	418.9	464.3	275.8	289.1	326.9	236.9	1,187.9
Switzerland	238.4	1,166.9	563.0	294.4	408.4	339.4	1,666.0	955.9	687.6	581.4
Nordic countries, total	1,955.1	2,146.9	1,245.7	784.3	639.7	821.5	2,337.7	1,303.3	2,127.3	2,300.8
Denmark	320.0	444.4	334.1	87.9	124.0	204.7	285.4	231.6	506.6	439.8
Finland	233.1	196.5	76.2	132.8	155.2	161.8	1,237.6	445.2	602.7	347.4
Iceland	141.3	39.9	4.5	3.6	3.4	1.7	61.2	1.7	69.0	68.0
Norway	343.2	414.9	276.7	191.6	155.1	83.8	204.0	219.2	240.7	193.3
Sweden	917.5	1,051.2	554.2	368.3	202.0	369.4	549.4	405.6	708.2	1,252.4
Central/eastern Europe, total	181.2	212.4	579.4	461.8	509.1	358.2	113.1	696.9	1,247.5	711.0
Austria	90.5	104.9	196.2	97.6	20.7	108.2	22.2	186.4	239.5	297.5
Czech Republic	0.0	0.0	0.0	21.4	16.4	9.4	7.5	179.0	129.7	136.7
Czechoslovakia	0.5	3.4	153.4	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	3.1	95.2	87.4	160.5	35.1	4.2	6.9	4.2	4.2	5.8
Poland	87.1	8.8	120.1	155.7	80.1	87.4	55.0	272.4	18.3	22.3
Russia	0.0	0.0	21.3	25.2	353.4	145.8	18.0	42.1	851.8	247.2
Slovakia	0.0	0.0	0.0	0.1	0.0	0.1	0.5	11.7	0.2	0.2
Slovenia	0.0	0.0	0.9	1.4	3.4	3.1	2.9	1.0	3.8	1.3
Asia, total	9,478.5	11,450.4	13,223.7	14,528.2	13,268.4	11,597.4	13,105.3	17,073.0	19,716.6	15,660.6
China	802.9	1,233.5	2,115.3	2,302.4	1,969.1	1,093.0	1,694.0	2,175.7	3,555.7	2,476.3
Hong Kong	565.7	752.8	651.1	559.8	411.1	436.9	712.7	201.7	475.8	334.0
India	26.6	30.4	22.0	498.8	204.8	101.7	393.3	316.0	468.5	437.0
Indonesia	407.5	122.1	447.2	775.1	452.7	110.3	224.8	510.7	287.3	43.3
Japan	3,986.4	3,577.3	4,173.9	3,159.4	3,683.0	3,218.8	3,310.5	4,592.1	5,711.3	5,200.2
Malaysia	438.9	661.3	818.9	1,508.3	978.2	274.3	321.3	1,421.0	1,376.3	532.1
Philippines	197.8	40.8	62.1	396.3	54.4	187.4	278.8	120.3	64.0	100.2
Singapore	774.9	1,243.3	916.8	1,397.6	1,761.0	1,422.4	1,490.0	1,874.8	2,184.7	1,989.7
South Korea	1,118.6	1,638.5	1,669.2	1,570.8	1,747.5	2,312.7	2,255.9	2,447.8	1,857.7	1,788.4
Taiwan	617.8	1,275.6	1,339.3	2,056.8	1,678.0	1,780.3	1,433.5	2,240.2	2,912.6	2,144.0
Thailand	541.3	874.7	1,008.1	302.9	328.5	659.8	990.5	1,172.7	822.7	615.4
South America, total	1,182.8	1,622.6	1,492.4	865.7	389.4	901.5	1,102.8	1,441.2	2,117.0	1,929.7
Argentina	98.2	57.4	274.5	209.2	98.8	167.6	67.8	135.6	280.7	372.3
Brazil	890.7	1,398.6	992.3	596.9	236.5	534.0	683.3	1,012.4	1,349.9	1,367.9
Chile	168.3	146.7	213.2	48.0	47.5	158.0	342.2	270.7	448.3	150.9
Peru	25.6	19.9	12.3	11.7	6.5	41.9	9.6	22.5	38.2	38.7
Africa, total	230.3	423.6	292.9	338.1	140.3	171.4	183.2	292.1	812.1	256.3
Kenya	5.8	6.0	8.2	9.1	9.2	6.9	11.0	90.9	47.0	54.6
Nigeria	38.9	10.8	5.0	5.4	14.0	4.9	3.2	2.5	5.0	4.5
South Africa	185.5	406.7	279.7	323.7	117.1	159.7	169.0	198.7	760.1	197.2
All other countries	5,642.5	5,322.4	7,519.0	6,448.2	5,233.6	3,922.2	6,148.7	8,238.0	11,434.8	11,793.3
Weapons										
Total	1,624.2	2,023.8	1,891.7	1,747.8	1,567.3	1,898.0	2,191.5	2,349.8	2,177.2	1,847.9
NAFTA partners, total	147.1	249.0	185.8	203.1	182.7	167.6	193.4	238.3	172.5	176.9
Canada	138.6	239.0	167.4	188.2	170.2	157.0	175.5	181.0	133.3	136.9
Mexico	8.5	10.0	18.4	14.9	12.6	10.6	17.8	57.4	39.2	40.0
Europe four, total	574.7	758.1	736.5	433.4	426.0	490.2	452.2	446.5	438.0	388.9
France	49.2	52.9	107.5	30.2	30.8	50.0	43.6	39.0	54.1	54.6
Germany	340.3	514.5	465.6	225.1	202.1	182.3	173.2	145.9	109.3	108.0
Italy	31.3	32.3	28.3	29.5	24.0	20.7	22.6	34.5	30.8	38.0
United Kingdom	153.9	158.4	135.0	148.6	169.1	237.2	212.9	227.1	243.9	188.2
Other western Europe, total	142.5	170.6	204.8	162.5	126.7	133.0	207.3	153.2	144.3	269.1
Belgium	20.0	13.8	16.5	28.7	30.0	17.0	10.4	6.1	3.9	4.7
Greece	1.5	2.6	1.7	2.9	3.9	15.0	2.9	6.4	26.3	44.4
Ireland	1.2	0.9	0.8	0.8	1.2	0.8	0.8	3.4	1.7	1.2
Netherlands	34.7	46.0	69.3	71.8	36.7	38.8	84.2	81.3	72.3	160.3
Portugal	0.5	6.7	11.8	1.1	1.8	4.4	17.4	1.4	4.5	2.5
Spain	30.3	14.6	56.8	11.5	20.4	21.6	40.5	18.9	16.9	27.4
Switzerland	54.1	86.0	47.8	45.7	32.7	35.3	51.1	35.7	18.7	28.6

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nordic countries, total	54.1	77.7	46.1	62.1	68.1	67.8	77.8	88.5	150.6	116.5
Denmark	5.1	2.3	3.5	4.9	11.1	5.5	9.1	9.8	15.9	4.1
Finland	2.9	3.0	2.0	1.2	1.4	4.1	3.1	4.4	5.8	7.2
Iceland	0.0	0.0	0.1	0.4	0.1	0.2	0.2	0.1	0.2	0.1
Norway	13.7	61.6	30.6	45.9	33.0	46.4	43.4	51.6	96.9	92.6
Sweden	32.4	10.8	9.8	9.7	22.5	11.6	22.0	22.6	31.7	12.5
Central/eastern Europe, total	3.0	6.6	10.7	7.9	7.7	26.2	10.9	52.4	17.1	17.9
Austria	2.5	5.3	6.9	3.1	3.1	3.3	2.6	45.0	7.1	11.1
Czech Republic	0.0	0.0	0.0	0.1	0.2	0.5	0.8	0.5	0.5	1.1
Czechoslovakia	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.1	0.5	0.4	0.2	0.2	0.3	0.2	0.5	0.2	1.4
Poland	0.4	0.7	1.7	0.4	0.7	0.7	1.9	3.0	3.8	1.4
Russia	0.0	0.0	1.2	3.9	3.3	21.4	5.0	3.1	5.2	2.8
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	—
Slovenia	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.3	0.1
Asia, total	440.3	539.9	491.5	692.9	592.3	715.3	908.6	867.4	700.6	486.5
China	13.9	22.9	18.7	23.9	20.0	40.7	35.4	34.0	16.5	19.6
Hong Kong	4.3	11.4	11.6	7.3	7.4	9.4	9.3	12.8	8.0	4.2
India	7.7	6.0	5.4	4.8	8.8	8.9	11.0	19.2	6.1	6.8
Indonesia	1.3	4.8	6.2	5.9	3.6	2.8	7.0	2.9	3.3	1.5
Japan	196.1	308.0	315.1	470.5	344.9	383.5	591.5	457.2	482.7	285.5
Malaysia	4.7	2.9	2.3	3.8	2.9	8.6	9.1	9.0	3.0	5.5
Philippines	0.9	0.4	0.8	0.4	0.5	4.1	9.9	5.1	2.3	3.1
Singapore	36.4	36.7	22.3	26.2	28.0	31.4	40.1	35.0	32.5	22.7
South Korea	49.3	71.5	49.6	33.0	25.9	39.9	57.8	61.6	61.6	63.5
Taiwan	124.6	65.5	57.8	114.1	146.5	174.0	132.8	220.8	80.0	70.9
Thailand	1.0	9.7	1.6	2.9	3.8	12.0	4.6	9.7	4.5	3.3
South America, total	14.2	15.3	14.9	10.3	12.2	19.7	16.1	22.0	28.3	55.5
Argentina	1.6	4.8	4.3	2.9	3.0	4.0	5.2	6.2	6.9	3.8
Brazil	9.7	7.4	7.0	5.1	4.8	10.5	6.1	9.6	15.5	17.1
Chile	2.2	2.5	3.4	1.5	4.1	2.6	2.2	2.4	4.6	33.6
Peru	0.6	0.5	0.1	0.7	0.2	2.6	2.5	3.8	1.4	1.0
Africa, total	9.2	10.8	8.6	3.6	6.0	5.9	6.9	6.3	9.4	5.2
Kenya	0.1	0.2	0.3	0.1	0.2	0.1	0.0	0.1	0.2	—
Nigeria	7.9	8.0	6.5	1.9	1.0	1.8	2.1	3.2	6.7	1.0
South Africa	1.2	2.6	1.9	1.5	4.8	4.1	4.7	3.0	2.5	4.2
All other countries	239.2	195.9	192.8	172.1	145.7	272.2	318.4	475.1	516.6	331.4

Nuclear technology

Total	1,071.7	1,153.0	1,254.4	1,190.7	1,318.7	1,014.7	1,061.0	1,253.7	1,251.1	1,224.5
NAFTA partners, total	27.0	37.7	42.7	27.4	55.0	12.0	28.0	14.6	56.7	22.4
Canada	24.9	28.3	23.9	21.7	45.8	8.2	9.4	11.6	12.8	14.6
Mexico	2.1	9.4	18.8	5.7	9.2	3.8	18.6	3.1	43.8	7.8
Europe four, total	80.8	105.1	94.7	101.4	102.1	90.0	78.1	86.6	176.5	176.9
France	17.0	13.7	12.9	24.1	31.6	26.4	17.8	15.2	26.1	37.1
Germany	30.9	39.8	46.5	48.0	39.3	39.4	32.1	43.8	108.3	97.8
Italy	9.8	10.3	9.6	8.3	8.1	6.3	7.2	9.9	5.9	4.0
United Kingdom	23.1	41.3	25.7	20.9	23.2	17.9	21.0	17.7	36.2	38.1
Other western Europe, total	31.2	44.5	53.2	53.3	61.7	87.2	76.8	97.8	56.5	49.4
Belgium	4.0	5.0	3.8	8.7	5.3	10.3	27.4	32.0	2.6	8.1
Greece	0.2	0.5	0.5	0.6	0.4	0.7	0.4	0.3	0.4	0.4
Ireland	1.6	0.8	1.8	0.9	1.0	0.8	2.2	1.8	0.7	0.5
Netherlands	8.5	8.8	8.1	11.4	9.8	9.9	6.7	7.7	4.9	6.1
Portugal	0.5	1.9	0.8	0.2	0.1	0.3	0.0	0.1	0.7	0.3
Spain	9.0	23.5	30.3	27.0	39.9	61.1	35.6	50.4	43.0	14.8
Switzerland	7.3	4.0	7.8	4.5	5.1	4.0	4.6	5.5	4.3	19.2
Nordic countries, total	37.7	19.4	17.3	9.0	12.8	43.3	49.7	18.3	36.5	20.0
Denmark	0.8	2.0	0.7	2.4	1.8	1.4	3.3	1.5	1.6	0.7
Finland	2.0	2.6	2.2	1.0	0.7	1.6	0.9	4.3	2.5	3.8
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2
Norway	0.5	0.7	0.3	0.3	0.3	0.6	0.7	0.7	1.3	0.8
Sweden	34.4	14.2	14.1	5.3	9.9	39.7	44.7	11.7	30.9	14.5
Central/eastern Europe, total	2.8	2.9	4.4	5.7	8.7	8.0	17.9	30.9	25.8	12.6
Austria	1.7	2.3	2.5	2.0	3.2	3.3	1.9	3.7	5.6	3.6
Czech Republic	0.0	0.0	0.0	0.5	1.1	0.6	6.0	18.9	4.8	0.6
Czechoslovakia	0.3	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.3	0.3	0.6	0.5	0.5	0.2	0.3	0.2	0.2	0.1
Poland	0.4	0.2	0.2	1.4	0.5	0.6	1.5	0.8	0.9	0.2
Russia	0.0	0.0	0.6	0.9	2.9	2.6	3.3	5.0	8.7	3.6
Slovakia	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.3	1.3	—
Slovenia	0.0	0.0	0.0	0.4	0.2	0.6	4.8	1.9	4.3	4.5
Asia, total	869.3	918.3	1,005.0	966.4	1,042.5	747.6	776.0	973.8	865.6	918.5
China	3.5	5.6	4.2	3.2	2.9	12.6	4.5	2.5	9.4	7.1
Hong Kong	1.1	1.3	2.1	2.5	3.7	4.2	2.7	2.3	5.6	3.1
India	2.5	1.8	2.2	2.5	1.9	2.9	3.6	2.4	2.2	1.5

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-4.
U.S. trade exports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Indonesia	0.7	0.8	1.7	1.2	0.6	0.9	0.7	0.4	0.1	0.2
Japan	666.6	798.5	738.3	794.4	826.6	641.8	545.2	609.7	615.4	587.3
Malaysia	0.4	0.7	0.7	1.3	0.7	1.7	1.3	4.1	1.3	1.4
Philippines	0.1	0.3	0.4	0.6	0.2	1.8	0.5	1.8	0.4	0.3
Singapore	0.4	1.2	2.1	0.9	2.8	1.5	1.2	2.6	2.7	1.0
South Korea	110.7	78.0	83.2	115.3	81.9	65.0	164.5	189.3	128.4	208.0
Taiwan	82.8	29.2	169.8	44.0	120.6	12.6	50.6	157.3	99.2	108.2
Thailand	0.4	0.9	0.4	0.5	0.8	2.6	1.2	1.2	0.9	0.4
South America, total	5.0	4.0	3.6	5.4	5.8	6.7	9.5	8.5	13.6	9.1
Argentina	0.5	0.6	0.8	2.6	1.1	1.1	1.4	2.7	3.5	1.3
Brazil	3.9	2.5	2.5	2.2	4.4	4.0	5.7	5.1	9.3	7.3
Chile	0.5	0.8	0.2	0.6	0.3	1.4	0.3	0.2	0.6	0.2
Peru	0.1	0.0	0.1	0.1	0.0	0.2	2.2	0.5	0.2	0.3
Africa, total	0.6	0.9	0.7	0.8	0.6	0.5	1.1	0.6	0.4	0.6
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	—
Nigeria	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1
South Africa	0.6	0.8	0.5	0.7	0.6	0.5	0.7	0.5	0.4	0.4
All other countries	17.3	20.2	33.0	21.2	29.4	19.3	24.0	22.7	19.4	15.0
Computer software										
Total	1,351.8	1,625.2	2,079.7	2,530.2	3,027.9	3,057.9	2,617.7	3,020.8	3,325.0	3,403.0
NAFTA partners, total	460.4	522.7	631.8	740.6	930.0	919.4	719.3	842.5	1,153.1	1,205.7
Canada	442.3	497.6	592.6	681.3	826.4	864.8	658.2	753.9	995.0	1,066.2
Mexico	18.0	25.1	39.2	59.2	103.6	54.7	61.1	88.5	158.2	139.5
Europe four, total	349.6	400.5	539.7	627.4	665.8	580.6	450.7	478.0	532.7	522.6
France	62.3	73.6	90.5	95.8	111.3	104.5	73.4	76.7	114.1	94.3
Germany	110.9	142.0	214.9	260.3	255.6	203.9	143.7	123.3	151.3	163.4
Italy	35.6	30.0	38.7	38.8	50.3	56.3	54.8	54.8	48.0	50.0
United Kingdom	140.9	154.8	195.6	232.4	248.6	216.0	178.7	223.3	219.4	214.8
Other western Europe, total	101.8	139.5	192.9	223.3	259.2	252.9	196.0	205.1	264.9	284.8
Belgium	15.0	21.7	31.3	43.8	54.0	41.7	23.7	28.0	37.3	36.4
Greece	1.6	2.5	4.3	5.5	6.7	6.2	2.1	3.2	4.0	3.7
Ireland	4.2	9.5	21.7	33.8	32.9	38.2	32.0	27.5	38.3	47.9
Netherlands	38.0	55.4	67.8	81.6	95.9	97.3	85.6	98.5	117.7	129.0
Portugal	2.5	3.9	6.1	6.5	5.4	6.1	5.3	10.4	5.0	7.4
Spain	18.6	28.7	34.7	24.8	28.4	29.1	24.0	17.8	25.3	29.1
Switzerland	21.9	17.8	27.0	27.3	36.1	34.4	23.3	19.6	37.3	31.2
Nordic countries, total	49.6	61.5	70.2	77.8	88.0	76.3	58.9	62.3	68.4	79.2
Denmark	7.7	21.4	20.4	26.7	27.7	16.6	13.8	14.1	14.7	17.6
Finland	5.8	4.8	6.0	7.4	9.3	12.5	6.5	8.3	8.5	10.6
Iceland	0.2	0.6	0.4	0.5	0.5	0.6	0.5	0.5	1.6	1.1
Norway	9.4	9.2	9.8	13.5	15.4	11.5	8.1	9.2	11.1	12.5
Sweden	26.5	25.5	33.7	29.6	35.2	35.1	30.0	30.2	32.4	37.4
Central/eastern Europe, total	10.9	22.2	36.9	47.0	65.8	42.7	27.2	27.4	28.3	35.1
Austria	7.3	10.3	12.0	14.0	14.2	10.7	9.6	8.4	10.2	8.0
Czech Republic	0.0	0.0	0.0	7.1	12.7	5.5	2.6	2.7	3.2	3.8
Czechoslovakia	0.3	4.3	6.5	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	2.5	4.2	9.8	9.5	7.9	3.5	1.8	3.6	3.7	7.8
Poland	0.8	3.3	6.0	7.4	10.8	7.4	4.3	5.1	5.3	10.5
Russia	0.0	0.0	2.0	7.5	16.5	9.9	6.1	6.1	3.7	2.7
Slovakia	0.0	0.0	0.0	0.1	1.2	2.2	0.5	0.5	0.7	0.5
Slovenia	0.0	0.0	0.4	1.4	2.4	3.5	2.2	0.9	1.4	1.7
Asia, total	256.4	302.7	370.3	482.7	576.7	731.6	747.7	892.1	804.2	859.3
China	7.1	7.0	17.4	30.1	30.0	24.3	19.1	18.1	41.3	38.1
Hong Kong	16.6	25.3	31.1	42.8	49.4	87.3	64.5	85.6	63.3	66.0
India	5.5	4.7	6.5	6.5	9.3	33.1	29.4	35.6	52.6	47.9
Indonesia	2.3	2.1	2.0	2.5	1.5	3.0	2.3	2.5	0.7	1.0
Japan	143.6	170.4	180.2	205.0	261.0	337.8	384.4	474.1	437.7	402.4
Malaysia	2.1	4.4	5.4	10.8	13.1	12.2	15.8	20.2	13.5	14.8
Philippines	3.8	0.8	1.4	3.2	3.0	3.7	6.4	5.8	4.8	7.9
Singapore	26.5	30.9	42.4	60.2	63.2	71.9	62.1	60.1	49.0	105.5
South Korea	25.7	32.6	39.0	64.8	86.2	90.4	94.3	106.2	50.1	79.8
Taiwan	20.4	22.9	41.1	52.1	49.1	49.0	53.7	72.8	84.5	84.6
Thailand	2.9	1.6	3.9	4.8	10.9	19.0	15.9	11.1	6.5	11.3
South America, total	14.7	35.8	49.7	91.5	128.9	135.9	128.3	172.7	199.2	134.9
Argentina	2.0	18.1	17.7	34.5	37.2	19.8	20.4	31.2	35.6	30.4
Brazil	9.1	12.1	23.9	46.3	78.8	93.3	87.0	116.1	132.3	77.2
Chile	3.2	5.1	7.3	9.1	9.3	17.4	15.8	18.5	20.3	18.7
Peru	0.4	0.6	0.8	1.6	3.6	5.4	5.1	6.9	11.0	8.6
Africa, total	12.0	17.7	24.0	37.4	52.7	52.5	47.8	33.3	26.5	19.7
Kenya	0.1	0.1	0.1	0.6	0.3	0.5	0.3	0.2	0.5	0.1
Nigeria	0.5	1.1	0.6	0.9	1.0	0.9	0.2	0.3	0.8	0.6
South Africa	11.4	16.5	23.4	36.0	51.4	51.1	47.3	32.7	25.2	18.9
All other countries	96.5	122.6	164.1	202.6	260.8	265.9	241.7	307.6	247.7	261.9

NAFTA = North American Free Trade Agreement; — = less than \$50,000

SOURCE: Special tabulations provided by Foreign Trade Division, U.S. Bureau of Census.

Appendix table 6-5.

U.S. trade imports of advanced technology products: 1990–99
 (Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
All technologies										
Total	59,381.2	63,252.1	71,871.5	81,233.1	98,116.5	124,787.0	130,361.6	147,289.7	156,673.1	180,646.3
NAFTA partners, total	7,022.1	8,018.8	8,808.8	8,506.5	10,830.6	13,706.7	16,337.2	19,300.7	21,314.2	25,484.7
Canada	5,783.8	6,883.8	7,240.3	6,940.5	8,315.1	10,223.0	11,593.2	12,974.8	14,322.0	15,836.8
Mexico	1,238.3	1,135.0	1,568.5	1,566.0	2,515.5	3,483.7	4,744.0	6,325.9	6,992.3	9,647.9
Europe four, total	10,198.0	11,773.1	13,329.7	13,134.7	13,835.6	15,817.2	17,307.7	20,953.1	25,486.4	28,549.3
France	3,422.6	4,161.5	4,889.8	4,980.1	4,760.6	4,389.3	4,860.9	5,664.4	7,646.0	7,893.8
Germany	2,283.0	2,811.7	3,082.9	2,777.8	3,116.3	4,224.0	4,460.2	5,737.9	7,724.4	8,969.9
Italy	682.9	778.7	760.7	790.8	960.4	1,303.9	1,376.0	1,271.9	1,472.5	1,965.5
United Kingdom	3,809.4	4,021.2	4,596.3	4,586.0	4,998.1	5,899.9	6,610.5	8,279.0	8,643.4	9,720.1
Other western Europe, total	1,688.2	2,349.9	2,699.7	2,926.4	2,561.7	4,192.1	4,430.3	6,330.3	7,939.4	9,383.7
Belgium	136.3	139.4	161.1	192.3	190.2	439.5	619.1	882.9	747.9	964.1
Greece	0.5	0.6	0.6	0.9	1.2	0.8	3.8	7.1	3.9	8.1
Ireland	427.2	598.5	698.5	951.5	761.0	1,710.3	1,639.9	2,725.5	4,518.3	5,356.4
Netherlands	682.9	1,035.2	1,284.6	1,193.4	982.8	1,101.5	1,005.1	1,276.3	1,182.4	1,352.5
Portugal	30.4	27.7	16.7	37.6	13.6	34.0	54.2	65.1	78.8	37.1
Spain	202.4	268.7	235.0	201.3	197.2	188.1	220.6	301.7	397.0	386.5
Switzerland	208.6	279.7	303.3	349.4	415.6	718.0	887.7	1,071.7	1,011.1	1,279.1
Nordic countries, total	867.3	921.7	791.9	742.1	766.3	1,082.1	1,453.6	1,448.4	1,574.3	1,652.0
Denmark	69.5	83.3	81.3	105.2	126.4	124.2	148.5	201.2	258.5	313.7
Finland	55.3	63.1	72.0	83.9	113.4	172.5	197.2	314.3	277.5	294.6
Iceland	0.3	5.0	1.2	8.4	1.8	1.6	3.0	1.3	8.0	7.9
Norway	98.8	100.1	104.6	105.8	110.0	142.1	147.2	179.7	216.1	234.0
Sweden	643.4	670.2	532.8	438.9	414.7	641.7	957.7	751.9	814.3	801.8
Central/eastern Europe, total	93.9	68.8	112.0	184.5	398.6	598.2	709.3	1,024.0	1,695.4	2,230.3
Austria	82.7	58.3	83.9	81.1	136.7	175.2	214.6	234.5	260.3	292.2
Czech Republic	0.0	0.0	0.0	12.6	14.5	28.6	42.4	66.3	75.3	68.0
Czechoslovakia	0.1	0.7	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	5.6	6.1	6.3	13.2	21.8	34.9	148.4	451.5	840.5	1,151.4
Poland	5.4	3.7	3.7	4.6	9.3	20.8	39.4	37.5	57.0	46.0
Russia	0.0	0.0	14.5	70.2	194.4	305.5	242.9	222.5	451.6	662.3
Slovakia	0.0	0.0	0.0	1.6	0.6	0.9	1.3	1.2	2.9	2.1
Slovenia	0.0	0.0	0.4	1.1	21.2	32.4	20.3	10.5	7.8	8.3
Asia, total	37,726.9	38,358.4	44,216.0	54,062.1	67,918.6	87,257.9	87,539.6	95,104.9	94,348.5	107,305.5
China	162.5	356.1	594.9	1,107.7	2,324.5	3,456.0	3,826.1	4,867.4	6,124.9	8,217.0
Hong Kong	1,200.3	1,048.9	1,159.7	1,437.0	1,384.8	1,776.8	1,664.1	1,763.5	1,483.8	1,528.6
India	10.3	15.8	18.0	36.3	48.2	99.8	155.6	276.0	154.1	134.9
Indonesia	19.9	89.4	281.6	380.7	521.3	594.3	582.6	810.5	904.6	967.5
Japan	19,453.6	19,799.5	21,458.4	24,959.3	28,727.3	32,950.1	30,527.9	31,772.1	28,976.7	31,652.5
Malaysia	1,905.1	2,331.3	3,368.7	4,968.1	6,995.6	9,676.6	9,636.2	10,386.1	11,369.0	13,466.4
Philippines	657.8	765.5	1,049.5	1,327.4	1,655.2	2,525.3	3,468.5	5,056.0	6,368.4	6,866.2
Singapore	5,795.1	5,954.7	7,057.8	8,452.8	10,845.5	13,685.4	15,561.1	15,195.2	14,006.8	13,730.7
South Korea	3,693.8	3,357.1	3,657.0	4,672.4	6,660.3	11,134.3	9,517.0	9,823.8	9,382.6	13,561.9
Taiwan	3,695.9	3,440.0	4,079.2	5,014.9	6,424.3	8,680.7	9,934.8	11,877.4	12,275.2	13,929.6
Thailand	1,132.8	1,200.1	1,491.1	1,705.5	2,331.6	2,678.5	2,665.7	3,277.1	3,302.3	3,250.3
South America, total	363.0	243.1	235.4	187.6	150.9	221.8	271.6	420.7	1,040.6	1,445.3
Argentina	6.0	8.3	32.6	28.7	34.5	15.8	11.8	19.7	56.4	20.6
Brazil	354.2	234.1	201.8	158.2	115.0	204.6	257.0	396.6	983.0	1,418.9
Chile	0.5	0.5	0.6	0.6	1.1	1.0	1.4	3.0	0.7	2.5
Peru	2.4	0.2	0.4	0.2	0.3	0.4	1.4	1.4	0.5	3.2
Africa, total	2.7	1.8	7.3	8.0	14.7	18.4	15.7	9.3	14.6	28.9
Kenya	1.0	0.4	4.0	1.5	0.7	2.9	3.1	3.3	1.3	11.7
Nigeria	0.1	0.1	0.0	0.2	0.2	3.2	0.1	0.0	0.4	0.1
South Africa	1.7	1.3	3.2	6.2	13.8	12.3	12.5	5.9	12.9	17.2
All other countries	1,419.1	1,516.5	1,670.7	1,481.2	1,639.4	1,892.6	2,296.7	2,698.2	3,259.8	4,566.5
Biotechnology										
Total	32.1	48.7	48.8	59.2	73.3	444.8	548.8	825.9	748.2	1,006.4
NAFTA partners, total	10.3	9.1	10.3	8.7	9.6	15.1	12.0	10.3	29.5	90.1
Canada	1.2	0.2	0.0	0.2	0.1	10.9	7.9	7.7	18.5	70.1
Mexico	9.1	9.0	10.3	8.5	9.5	4.2	4.1	2.6	11.0	20.0
Europe four, total	11.0	23.3	21.3	16.3	11.0	98.7	129.9	170.6	220.5	270.4
France	3.7	6.0	3.1	3.1	2.9	42.3	61.4	104.7	109.6	127.2
Germany	5.1	14.0	15.9	11.1	5.7	14.5	18.8	17.5	39.9	56.7
Italy	1.4	1.7	1.4	1.7	2.2	7.0	13.0	11.2	9.9	12.3
United Kingdom	0.7	1.6	0.9	0.4	0.2	34.8	36.7	37.2	61.0	74.2
Other western Europe, total	7.2	11.3	12.7	29.1	28.3	266.6	327.5	569.3	425.2	558.9
Belgium	0.2	0.0	0.0	0.0	0.2	176.0	185.9	270.1	200.6	256.2
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Ireland	0.6	1.0	2.6	3.1	1.1	4.6	18.6	54.8	69.6	67.5
Netherlands	5.4	4.7	3.9	7.3	11.1	29.9	58.8	54.2	52.6	102.4
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Spain	0.0	0.1	0.0	0.0	0.0	8.8	5.0	6.9	7.9	19.1
Switzerland	0.9	5.5	6.2	18.6	15.9	47.3	59.1	183.3	94.5	113.6

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-5.
U.S. trade imports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nordic countries, total	0.8	1.1	0.6	0.8	2.8	6.7	3.2	5.6	7.3	7.6
Denmark	0.1	0.0	0.0	0.1	1.6	3.2	1.7	3.1	3.1	3.0
Finland	0.0	0.3	0.0	0.0	0.0	1.2	0.3	1.3	1.5	0.7
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Sweden	0.8	0.8	0.6	0.6	1.1	2.3	1.3	1.2	2.8	3.5
Central/eastern Europe, total	0.6	1.0	0.8	1.6	19.1	30.6	25.8	14.8	18.9	13.0
Austria	0.2	0.1	0.3	0.3	0.0	0.4	0.1	1.5	4.2	0.2
Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1
Czechoslovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.4	0.9	0.4	0.5	1.3	4.1	7.8	5.6	7.9	6.4
Poland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Russia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Slovakia	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.3
Slovenia	0.0	0.0	0.0	0.9	17.8	25.8	17.5	7.4	6.6	6.1
Asia, total	1.6	2.1	1.9	1.6	1.5	22.2	42.0	40.0	37.5	41.7
China	0.0	0.0	0.3	0.3	0.0	0.6	9.9	10.7	12.0	14.5
Hong Kong	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.0
India	0.2	0.2	0.0	0.0	0.0	0.0	1.5	0.5	0.8	0.5
Indonesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Japan	1.4	1.9	1.6	1.3	1.0	21.5	29.9	28.7	24.6	25.3
Malaysia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Philippines	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	—
Singapore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Korea	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4
Taiwan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Thailand	0.0	0.0	0.0	0.0	0.0	0.1	0.2	6.6	0.0	—
South America, total	0.0	0.0	0.0	0.0	0.0	0.1	0.0	5.7	4.1	6.6
Argentina	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	2.2	5.8
Brazil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.8
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Africa, total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Africa	0.0	0.0	0.0	0.0	0.0	4.9	8.0	8.6	0.1	1.0
All other countries	0.6	0.8	1.1	1.2	1.0	4.9	8.0	8.6	5.2	17.1

Life science technology

Total	3,417.6	4,305.8	4,821.4	4,607.5	4,821.5	6,607.2	7,832.7	10,002.4	12,425.9	15,085.1
NAFTA partners, total	186.6	277.7	379.6	250.2	290.8	450.1	559.4	890.3	847.1	932.8
Canada	79.6	101.4	119.5	120.1	145.3	175.9	228.3	467.9	376.0	357.4
Mexico	107.0	176.3	260.1	130.1	145.5	274.2	331.1	422.5	471.2	575.4
Europe four, total	1,331.0	1,888.8	2,057.0	1,919.5	1,957.5	2,587.8	3,078.6	3,910.2	5,434.9	6,160.6
France	217.9	277.9	259.9	262.6	355.8	325.0	495.3	452.6	436.8	478.5
Germany	793.1	1,135.9	1,215.7	1,036.6	944.7	1,240.6	1,304.7	2,202.5	3,398.7	3,537.4
Italy	44.6	58.1	70.8	72.0	78.9	127.4	151.3	187.1	328.3	444.7
United Kingdom	275.4	416.8	510.7	548.3	578.0	894.9	1,127.3	1,068.1	1,271.0	1,699.9
Other western Europe, total	354.1	446.5	517.5	647.2	606.3	1,024.9	1,511.5	2,365.6	3,165.1	4,341.5
Belgium	22.1	32.2	35.2	34.2	45.7	112.5	179.6	278.1	200.3	394.9
Greece	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1
Ireland	78.2	97.0	112.2	162.4	134.2	299.8	566.3	1,253.1	2,212.0	3,036.1
Netherlands	172.9	187.7	210.3	257.5	218.1	207.8	271.0	281.7	253.0	334.2
Portugal	0.6	0.2	0.3	0.2	0.6	1.3	1.6	0.5	0.7	2.6
Spain	10.4	15.4	15.7	24.5	20.7	25.3	24.0	41.1	38.6	39.5
Switzerland	69.9	114.0	143.7	168.5	187.0	378.1	469.0	511.0	460.4	534.1
Nordic countries, total	99.3	104.9	95.1	112.4	123.0	218.3	229.6	270.6	340.3	417.4
Denmark	18.8	20.7	25.0	33.8	38.9	43.7	61.1	102.6	104.6	171.7
Finland	25.5	38.4	37.8	29.1	45.8	65.2	64.4	76.1	97.8	102.3
Iceland	0.0	0.0	1.0	1.8	0.4	1.3	0.5	0.8	5.5	7.2
Norway	5.6	3.5	2.1	3.4	3.8	10.4	12.5	13.9	22.0	31.1
Sweden	49.3	42.4	29.1	44.2	34.1	97.7	91.1	77.2	110.5	105.1
Central/eastern Europe, total	15.1	18.0	29.5	83.2	198.9	338.6	265.7	205.8	101.1	127.2
Austria	11.1	13.8	10.8	16.5	24.1	53.4	57.4	74.5	65.5	93.4
Czech Republic	0.0	0.0	0.0	0.0	0.2	0.3	0.5	3.4	5.7	5.9
Czechoslovakia	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	4.0	4.0	4.6	7.8	9.2	6.9	5.3	7.7	15.1	10.2
Poland	0.1	0.2	0.5	0.3	0.7	0.6	0.8	0.9	0.9	1.2
Russia	0.0	0.0	13.2	58.3	161.3	271.7	200.3	117.8	13.0	16.3
Slovakia	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.0	0.7	—
Slovenia	0.0	0.0	0.2	0.1	3.2	5.4	1.2	1.5	0.2	0.3
Asia, total	869.2	1,027.1	1,117.7	1,117.9	1,195.0	1,421.8	1,593.4	1,655.9	1,785.2	2,259.6
China	14.0	14.8	48.8	58.5	101.7	100.2	151.4	192.2	230.8	260.5
Hong Kong	19.8	18.6	24.1	16.5	16.1	18.9	20.8	16.0	14.9	14.1
India	1.2	1.2	1.3	2.2	3.5	9.4	17.2	15.4	27.8	42.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-5.
U.S. trade imports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Indonesia	0.1	0.3	0.1	0.0	0.0	0.2	0.1	0.5	0.2	0.1
Japan	746.6	889.6	910.3	891.1	896.3	1,105.5	1,185.1	1,192.1	1,252.0	1,428.0
Malaysia	0.2	0.7	1.3	1.6	2.3	8.8	9.1	12.8	11.5	14.3
Philippines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.0	3.5
Singapore	63.2	75.0	100.2	107.7	110.6	130.8	151.5	165.2	175.2	400.5
South Korea	8.6	7.3	7.2	6.4	7.4	8.5	10.5	20.9	28.1	42.8
Taiwan	13.3	16.2	20.4	26.8	49.0	30.1	40.5	32.3	34.4	46.8
Thailand	2.2	3.4	4.0	6.9	8.0	9.2	7.1	8.1	7.3	6.9
South America, total	2.5	3.6	1.7	2.3	1.6	3.0	3.1	5.6	53.6	12.3
Argentina	0.3	0.2	0.3	0.4	0.5	1.1	1.1	1.6	48.8	9.7
Brazil	2.1	3.4	1.3	1.9	1.1	1.8	1.9	3.8	4.8	2.5
Chile	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.1
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Africa, total	0.2	0.5	0.5	3.3	7.9	5.9	1.8	3.0	3.3	3.2
Kenya	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	—
Nigeria	0.0	0.0	0.0	0.0	0.1	3.0	0.0	0.0	0.0	—
South Africa	0.1	0.5	0.5	3.3	7.8	2.9	1.7	3.0	3.2	3.2
All other countries	559.5	538.7	622.7	471.6	440.6	556.8	589.6	695.5	695.2	830.5
Optoelectronics										
Total	1,138.0	2,038.4	2,570.3	2,531.0	2,544.1	2,816.6	3,172.7	3,636.6	3,952.1	4,672.2
NAFTA partners, total	74.1	74.8	219.7	107.6	66.8	122.8	215.7	418.9	479.8	313.0
Canada	19.4	18.7	24.4	22.0	20.4	42.8	38.7	41.0	38.5	59.1
Mexico	54.7	56.1	195.3	85.6	46.4	80.0	176.9	377.9	441.3	253.9
Europe four, total	42.3	104.6	90.7	93.3	89.1	132.0	142.0	154.5	167.3	190.7
France	2.9	5.3	4.7	9.7	11.3	10.3	15.6	21.7	25.2	38.7
Germany	16.0	57.1	41.7	38.3	38.8	59.0	48.9	65.5	70.7	69.0
Italy	1.4	1.9	4.0	13.3	8.4	16.0	4.6	13.0	14.3	11.6
United Kingdom	21.9	40.2	40.2	32.0	30.7	46.7	73.0	54.3	57.0	71.5
Other western Europe, total	25.2	30.0	35.2	46.2	57.9	51.7	60.4	63.3	91.8	129.8
Belgium	7.3	3.6	4.2	3.8	6.1	5.8	11.3	7.9	16.0	7.9
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Ireland	1.3	1.7	6.2	13.7	15.0	11.6	0.8	3.3	2.4	1.3
Netherlands	3.0	6.8	5.7	4.2	9.2	10.3	15.7	12.5	11.0	20.4
Portugal	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.9	1.5
Spain	0.1	2.0	1.0	1.2	1.0	1.6	0.6	2.7	9.1	10.4
Switzerland	13.6	15.7	18.0	23.3	26.6	22.3	31.9	36.8	52.4	88.3
Nordic countries, total	7.2	9.2	4.5	10.4	10.8	12.9	16.9	20.9	13.3	19.5
Denmark	2.1	3.3	2.5	3.4	4.0	3.8	4.0	5.2	5.2	7.6
Finland	0.0	0.4	0.4	0.4	1.2	1.1	2.0	3.7	1.7	2.6
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Norway	0.0	0.0	0.0	0.9	0.4	0.2	0.7	1.2	0.6	1.7
Sweden	5.1	5.6	1.6	5.7	5.2	7.7	10.1	10.7	5.8	7.5
Central/eastern Europe, total	13.5	7.0	10.9	11.9	6.1	9.1	5.1	4.7	4.1	4.6
Austria	13.4	6.9	10.5	6.0	4.7	8.5	3.9	3.8	2.9	2.3
Czech Republic	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.4	0.3
Czechoslovakia	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.0	0.0	0.0	2.1	0.8	0.2	0.4	0.2	0.2	1.4
Poland	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.2
Russia	0.0	0.0	0.0	3.6	0.4	0.3	0.5	0.4	0.4	0.5
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Slovenia	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	—
Asia, total	968.8	1,803.9	2,196.2	2,242.2	2,287.2	2,450.6	2,669.7	2,896.6	3,088.4	3,920.6
China	8.9	17.4	33.3	57.0	178.8	338.4	385.8	468.5	676.6	1,082.9
Hong Kong	2.9	9.2	14.5	9.1	9.5	28.7	12.7	11.2	15.1	11.0
India	0.1	0.1	0.0	0.1	0.4	1.6	4.8	3.5	7.3	7.7
Indonesia	0.0	0.0	0.0	0.5	0.1	1.6	75.3	67.2	100.9	129.6
Japan	798.3	1,603.1	1,939.5	1,825.8	1,459.3	1,175.6	1,000.1	1,097.1	1,156.1	1,640.1
Malaysia	19.9	27.4	48.6	140.1	373.8	503.2	477.6	372.6	346.8	352.9
Philippines	0.2	1.7	3.1	6.3	13.1	49.8	91.6	104.5	62.1	27.7
Singapore	58.9	45.2	56.4	68.8	77.5	81.7	245.7	228.4	188.3	275.1
South Korea	32.9	37.4	50.2	40.0	29.7	61.8	54.3	42.5	40.2	85.1
Taiwan	46.2	62.2	50.1	85.5	125.7	175.9	270.7	426.5	443.0	259.7
Thailand	0.6	0.2	0.4	9.0	19.5	32.3	51.0	74.3	51.9	48.9
South America, total	0.6	0.1	0.3	0.3	0.2	0.2	0.6	1.5	2.4	2.9
Argentina	0.1	0.0	0.1	0.0	0.2	0.2	0.3	0.4	0.5	0.2
Brazil	0.5	0.1	0.1	0.3	0.0	0.0	0.3	1.0	1.9	2.7
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Peru	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	—
Africa, total	0.0	0.0	0.1	0.1	0.5	0.6	0.4	0.0	0.0	—
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	—
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Africa	0.0	0.0	0.1	0.1	0.5	0.6	0.2	0.0	0.0	—
All other countries	6.3	8.8	12.8	19.0	25.3	36.7	62.0	76.3	105.1	91.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-5.
U.S. trade imports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Information and communication										
Total	30,110.5	29,153.4	33,848.5	39,790.2	49,440.0	58,865.6	61,346.1	69,701.8	74,130.0	88,661.1
NAFTA partners, total	2,843.9	3,179.2	3,581.8	4,044.0	5,911.8	7,672.8	8,560.3	10,215.9	11,135.8	14,832.8
Canada	2,186.6	2,667.2	2,880.6	3,207.7	4,249.2	5,587.8	5,399.6	5,892.1	6,253.5	7,525.8
Mexico	657.4	512.0	701.2	836.3	1,662.5	2,084.9	3,160.7	4,323.8	4,882.3	7,307.0
Europe four, total	1,601.8	1,849.1	2,176.9	2,189.8	2,801.7	3,596.7	3,580.9	3,772.2	3,273.6	4,139.7
France	276.5	291.8	323.6	362.4	503.8	485.0	607.1	479.0	517.8	589.5
Germany	425.7	565.1	659.7	572.7	655.1	782.2	606.1	644.2	658.9	870.3
Italy	195.1	72.8	97.2	202.1	288.1	483.2	358.0	369.6	371.5	673.1
United Kingdom	704.5	919.3	1,096.5	1,052.6	1,354.7	1,846.2	2,009.7	2,279.4	1,725.4	2,006.8
Other western Europe, total	472.6	604.2	669.3	894.3	630.9	801.4	1,054.8	1,638.6	2,546.3	2,707.0
Belgium	31.5	46.1	65.8	76.8	71.9	73.9	118.8	158.5	123.5	116.3
Greece	0.1	0.1	0.0	0.1	0.0	0.2	0.1	0.7	0.1	0.4
Ireland	246.3	400.7	457.1	608.5	350.2	513.3	687.0	1,161.8	2,001.6	1,967.3
Netherlands	122.0	91.9	95.7	136.0	139.2	136.8	129.0	156.1	155.3	176.0
Portugal	20.6	22.2	3.3	1.4	1.8	1.8	8.0	10.2	14.7	18.2
Spain	28.3	24.1	22.2	43.3	34.1	37.6	60.0	109.9	205.4	188.5
Switzerland	23.8	19.3	25.1	28.3	33.7	38.0	51.9	41.5	45.8	240.2
Nordic countries, total	279.6	320.9	315.6	271.9	280.3	375.5	445.1	466.1	425.6	622.7
Denmark	20.8	31.3	32.1	27.3	34.6	38.0	36.2	33.9	49.0	55.9
Finland	18.6	11.4	21.8	32.4	33.8	38.2	31.7	142.2	93.2	95.9
Iceland	0.3	1.8	0.1	0.0	1.2	0.0	0.2	0.2	2.3	0.4
Norway	31.9	44.1	57.9	58.2	62.9	72.0	71.9	94.1	108.2	125.5
Sweden	207.9	232.3	203.6	154.0	147.8	227.2	305.1	195.7	172.8	345.0
Central/eastern Europe, total	21.9	14.7	37.9	14.6	47.7	38.0	184.9	483.6	852.7	1,180.2
Austria	21.7	14.3	37.1	12.2	39.5	10.3	23.9	26.2	29.2	34.0
Czech Republic	0.0	0.0	0.0	0.3	0.5	0.6	3.7	10.4	7.2	17.1
Czechoslovakia	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—	—
Hungary	0.1	0.3	0.1	0.1	4.6	15.5	127.3	423.8	794.5	1,106.8
Poland	0.0	0.1	0.2	0.1	1.3	9.9	24.6	18.4	16.2	18.2
Russia	0.0	0.0	0.5	1.1	1.8	0.8	3.7	3.0	3.3	1.4
Slovakia	0.0	0.0	0.0	0.8	0.0	0.0	0.3	0.4	1.6	1.3
Slovenia	0.0	0.0	0.0	0.0	0.1	0.9	1.4	1.5	0.6	1.4
Asia, total	24,570.5	22,825.1	26,515.7	31,844.3	39,136.5	45,784.2	46,733.0	52,267.8	54,625.1	62,718.0
China	114.0	293.1	467.4	878.0	1,900.0	2,740.5	2,886.7	3,708.1	4,487.6	5,858.3
Hong Kong	889.6	725.6	721.4	833.5	669.8	570.4	507.4	389.0	293.2	239.5
India	2.6	6.0	11.7	26.6	32.2	65.6	104.3	197.4	67.4	43.3
Indonesia	5.0	56.4	235.8	332.3	460.0	452.7	341.6	521.2	574.5	655.6
Japan	13,055.9	11,580.4	12,415.7	14,296.0	16,103.2	16,384.2	15,250.6	15,829.8	15,051.6	16,952.5
Malaysia	330.0	756.1	1,359.1	2,052.5	3,142.4	4,091.1	4,016.3	4,761.5	6,632.9	8,049.0
Philippines	94.7	115.6	225.0	252.8	258.9	502.5	949.2	1,716.8	2,392.3	2,433.7
Singapore	4,519.4	4,542.5	5,496.0	6,671.9	8,321.4	10,346.0	11,920.9	11,944.0	11,210.4	10,860.3
South Korea	1,876.4	1,372.7	1,464.3	1,943.4	2,497.9	3,750.3	2,848.4	3,353.2	3,554.6	6,273.9
Taiwan	2,935.5	2,572.4	2,951.9	3,353.4	4,134.4	5,174.4	6,309.1	7,728.3	8,113.3	9,294.5
Thailand	747.3	804.4	1,167.3	1,203.9	1,616.3	1,706.6	1,598.5	2,118.5	2,247.2	2,057.4
South America, total	29.2	59.6	114.2	63.8	61.1	72.2	76.1	41.6	71.7	116.9
Argentina	5.3	7.9	31.4	26.8	25.0	5.9	3.4	2.9	2.0	2.6
Brazil	23.3	51.3	82.4	36.7	35.3	65.8	71.6	37.2	69.2	112.3
Chile	0.2	0.3	0.4	0.3	0.8	0.3	0.6	0.4	0.2	1.6
Peru	0.4	0.0	0.1	0.1	0.1	0.1	0.5	1.1	0.3	0.4
Africa, total	1.6	0.6	2.6	1.6	1.3	4.2	2.6	3.6	5.7	14.4
Kenya	0.1	0.1	1.7	0.6	0.3	2.3	2.0	2.7	0.8	9.0
Nigeria	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.1
South Africa	1.4	0.5	0.9	1.0	0.9	1.9	0.6	0.9	4.6	5.3
All other countries	289.4	300.0	434.3	465.8	568.8	520.4	708.6	812.4	1,193.5	2,329.5
Electronics										
Total	10,955.3	12,391.7	14,205.3	17,824.2	25,507.3	38,232.6	36,629.6	36,877.6	33,922.5	37,978.3
NAFTA partners, total	1,315.9	1,695.0	1,987.6	1,783.8	1,979.3	2,512.3	2,998.2	3,325.1	3,412.6	3,348.1
Canada	980.4	1,389.3	1,663.2	1,343.1	1,375.2	1,730.1	2,149.9	2,352.2	2,437.9	2,151.3
Mexico	335.5	305.7	324.4	440.7	604.2	782.2	848.4	972.9	974.7	1,196.8
Europe four, total	597.3	613.8	649.7	751.6	1,624.7	2,346.4	2,283.7	2,130.6	2,205.3	2,055.1
France	74.0	64.8	76.8	84.5	403.5	763.3	849.6	688.0	896.0	557.9
Germany	258.2	286.0	300.3	297.1	491.1	698.7	708.0	712.9	681.5	791.2
Italy	41.5	33.5	40.0	84.6	236.3	213.9	205.8	170.4	112.3	179.7
United Kingdom	223.6	229.6	232.7	285.4	493.7	670.5	520.2	559.2	515.4	526.3
Other western Europe, total	158.2	167.2	178.9	199.4	326.3	974.2	494.2	377.9	380.2	417.8
Belgium	4.3	1.9	2.6	3.5	7.8	12.2	38.2	37.3	40.6	49.2
Greece	0.4	0.3	0.1	0.0	0.0	0.0	0.1	0.8	0.1	—
Ireland	72.8	74.7	90.8	109.5	207.8	844.7	303.8	168.5	158.7	213.0
Netherlands	23.3	26.9	38.0	32.5	37.5	49.0	54.1	67.0	49.5	70.6
Portugal	8.5	4.7	12.2	34.4	10.5	30.4	43.7	51.8	57.2	13.3
Spain	39.5	49.5	29.8	9.0	48.9	18.6	26.2	19.7	17.0	11.4
Switzerland	9.5	9.1	5.5	10.5	13.7	19.1	28.1	32.9	57.1	60.2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-5.
U.S. trade imports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nordic countries, total	17.7	19.9	13.8	28.4	40.3	56.1	95.4	101.2	92.5	124.1
Denmark	2.5	2.7	3.7	6.5	8.5	7.5	8.4	10.3	12.3	19.5
Finland	1.4	0.8	1.3	1.9	3.4	12.4	24.5	17.4	7.8	10.5
Iceland	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.1	0.1
Norway	0.7	2.3	0.8	0.9	0.8	2.3	2.5	5.2	4.0	4.5
Sweden	13.2	14.0	7.9	12.7	27.6	33.9	59.9	68.2	68.3	89.5
Central/eastern Europe, total	13.0	9.8	6.7	24.0	45.1	62.3	84.5	87.1	111.0	127.2
Austria	12.5	9.7	5.7	20.6	39.5	51.9	67.8	69.2	82.7	81.5
Czech Republic	0.0	0.0	0.0	0.1	0.1	0.2	2.9	3.4	4.4	13.4
Czechoslovakia	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	0.0	0.0	0.3	0.9	2.6	5.5	5.6	10.8	17.3	21.9
Poland	0.5	0.0	0.4	0.7	1.3	2.3	1.8	2.5	5.1	3.6
Russia	0.0	0.0	0.1	1.7	1.3	1.7	5.8	1.0	1.2	6.1
Slovakia	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.1	0.0	0.3
Slovenia	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.3	0.3
Asia, total	8,796.4	9,804.4	11,294.4	14,965.4	21,276.6	32,066.2	30,409.5	30,547.1	27,264.7	31,404.6
China	1.1	2.2	6.9	29.8	86.6	170.9	232.4	336.8	553.0	740.6
Hong Kong	267.1	283.2	376.2	561.1	666.9	1,136.1	1,105.3	1,325.9	1,121.2	1,195.0
India	2.0	2.2	1.5	3.0	4.2	11.0	14.2	26.1	20.5	21.0
Indonesia	13.5	26.1	43.0	44.8	54.2	127.4	163.4	211.1	226.0	167.7
Japan	2,749.0	3,365.7	3,802.1	5,036.3	7,222.7	10,124.2	8,275.5	7,382.6	5,604.3	6,161.5
Malaysia	1,538.2	1,528.3	1,877.1	2,675.7	3,397.7	4,970.0	4,972.0	5,083.0	4,189.6	4,889.5
Philippines	550.5	634.7	807.2	1,057.1	1,368.9	1,944.1	2,410.4	3,205.0	3,888.6	4,380.8
Singapore	1,052.5	1,140.8	1,215.5	1,341.1	2,020.7	2,771.6	2,948.2	2,525.8	2,089.9	2,030.4
South Korea	1,618.7	1,771.7	1,945.7	2,483.1	3,947.8	7,038.5	6,264.4	6,040.4	5,331.5	6,720.9
Taiwan	626.5	668.6	911.0	1,263.8	1,840.9	2,887.8	3,087.4	3,409.6	3,286.7	3,984.1
Thailand	377.3	381.0	308.0	469.7	666.0	884.6	936.4	1,000.8	953.3	1,113.1
South America, total	5.8	5.0	5.1	4.8	2.0	2.0	3.5	1.9	8.3	3.1
Argentina	0.1	0.0	0.1	0.1	0.2	0.1	0.3	0.0	0.0	0.1
Brazil	5.7	5.0	5.0	4.8	1.7	1.9	3.1	1.9	8.2	2.8
Chile	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2
Peru	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	—
Africa, total	0.4	0.4	2.1	1.0	3.7	3.4	8.2	1.2	0.9	2.6
Kenya	0.4	0.2	2.0	0.8	0.3	0.4	0.8	0.4	0.4	2.1
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Africa	0.0	0.2	0.1	0.2	3.4	3.0	7.3	0.7	0.6	0.4
All other countries	50.6	76.2	67.0	65.9	209.3	209.8	252.4	305.7	447.0	495.8

Flexible manufacturing

Total	1,676.6	1,789.7	1,684.5	2,222.2	2,899.7	4,947.5	5,740.7	6,798.1	6,575.6	6,220.3
NAFTA partners, total	26.0	27.7	35.4	58.6	80.8	353.0	430.7	396.1	314.5	395.4
Canada	25.5	26.5	33.9	58.0	80.0	144.2	278.5	276.9	230.5	279.5
Mexico	0.6	1.3	1.4	0.6	0.7	208.8	152.2	119.2	84.0	115.9
Europe four, total	314.1	298.4	301.5	342.0	397.7	773.6	989.6	1,156.7	1,238.7	1,353.0
France	18.8	12.2	12.6	17.6	18.2	61.1	65.1	77.0	88.9	82.7
Germany	171.5	198.7	196.5	221.3	222.4	418.2	535.5	661.2	718.7	750.4
Italy	29.0	25.8	27.5	35.8	62.9	76.0	113.9	98.9	125.5	128.7
United Kingdom	94.9	61.7	64.9	67.3	94.2	218.3	275.0	319.7	305.6	391.2
Other western Europe, total	84.4	99.7	98.2	94.4	134.9	436.7	489.2	633.5	619.7	625.6
Belgium	4.3	0.5	0.8	5.7	4.8	12.3	15.2	8.8	16.5	12.2
Greece	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Ireland	0.0	0.3	0.2	0.4	1.0	3.5	8.0	6.4	5.8	4.9
Netherlands	15.2	35.0	27.8	18.4	16.4	254.2	278.2	395.1	349.4	412.7
Portugal	0.2	0.2	0.4	0.7	0.1	0.0	0.6	2.1	1.7	1.0
Spain	5.1	2.2	3.1	2.5	6.7	10.1	17.7	25.7	31.7	35.6
Switzerland	59.6	61.4	66.0	66.6	105.8	156.5	169.5	195.5	214.4	159.2
Nordic countries, total	57.4	30.6	41.7	87.8	106.2	157.4	166.0	136.6	147.9	125.1
Denmark	0.2	0.3	0.5	1.0	2.9	3.5	4.3	5.9	10.5	7.9
Finland	6.0	7.3	5.0	12.8	14.9	16.9	23.2	30.0	37.2	33.1
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	—
Norway	0.4	1.0	1.3	0.5	3.2	14.9	13.7	6.5	3.1	2.7
Sweden	50.8	22.0	35.0	73.4	85.3	122.0	124.8	94.1	97.1	81.4
Central/eastern Europe, total	18.2	8.0	15.2	32.8	34.5	61.0	79.0	78.5	81.8	71.0
Austria	16.8	6.7	12.0	18.1	18.9	34.9	48.0	32.6	29.7	46.6
Czech Republic	0.0	0.0	0.0	11.2	12.2	22.7	27.8	38.8	44.9	17.7
Czechoslovakia	0.0	0.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	1.1	0.8	0.3	1.6	2.5	1.3	0.8	1.6	2.3	1.7
Poland	0.4	0.2	0.2	1.0	0.6	1.4	2.1	3.7	3.7	4.3
Russia	0.0	0.0	0.3	0.3	0.1	0.7	0.2	1.2	0.8	0.4
Slovakia	0.0	0.0	0.0	0.6	0.2	0.0	0.0	0.5	0.3	0.1
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2
Asia, total	1,162.6	1,309.6	1,166.1	1,581.8	2,109.5	3,110.1	3,511.5	4,287.9	4,095.8	3,558.3
China	1.1	1.1	1.2	3.0	3.3	19.7	21.4	31.1	37.3	37.8
Hong Kong	2.5	0.9	1.6	1.4	0.5	8.8	5.7	4.3	3.7	3.3
India	0.3	0.4	0.1	0.3	0.9	1.0	0.7	1.5	1.8	2.2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-5.
U.S. trade imports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Indonesia	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4	0.9
Japan	1,103.5	1,247.1	1,106.5	1,501.8	1,967.9	2,792.6	3,116.6	3,859.4	3,586.1	3,158.5
Malaysia	0.7	0.9	0.8	0.8	1.6	5.0	10.3	1.7	2.7	3.1
Philippines	0.0	0.0	0.1	0.0	0.1	4.0	0.9	9.0	7.0	4.3
Singapore	10.1	10.6	12.1	8.7	12.8	26.3	35.3	35.3	40.8	39.2
South Korea	9.4	11.1	9.6	16.6	41.4	122.1	162.7	182.4	185.8	143.7
Taiwan	31.4	29.1	26.7	37.4	63.6	103.6	133.5	147.1	209.1	149.4
Thailand	3.5	8.4	7.3	11.7	17.4	26.9	24.4	16.0	21.1	15.7
South America, total	0.6	2.2	1.3	3.6	8.3	15.7	22.9	28.8	11.3	14.2
Argentina	0.0	0.0	0.1	0.1	0.0	0.7	0.2	0.1	0.2	1.2
Brazil	0.5	2.2	1.2	3.5	8.3	15.0	22.4	28.5	11.2	13.0
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	—
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	—
Africa, total	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.2	1.5	4.7
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Africa	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.2	1.4	4.7
All other countries	13.3	13.4	25.1	21.2	27.8	40.0	51.2	79.7	64.4	72.9
Advanced materials										
Total	1,045.6	1,051.5	1,548.4	2,052.9	1,091.8	1,527.6	1,347.2	1,400.1	1,137.2	1,618.8
NAFTA partners, total	63.4	74.3	105.2	60.7	45.8	41.6	168.3	143.5	207.5	342.6
Canada	42.4	58.5	93.7	49.5	40.0	33.3	150.6	123.5	182.6	284.3
Mexico	21.0	15.8	11.4	11.2	5.8	8.3	17.7	20.0	24.9	58.3
Europe four, total	227.1	152.8	267.5	491.9	150.7	237.0	224.2	236.5	200.3	296.6
France	116.5	63.9	80.5	186.2	26.3	61.3	27.5	38.1	40.3	42.7
Germany	64.5	52.0	106.3	120.4	98.7	147.5	159.3	154.1	128.7	188.2
Italy	1.5	1.3	7.4	22.7	11.1	7.0	15.7	22.5	7.9	6.2
United Kingdom	44.6	35.6	73.4	162.7	14.7	21.3	21.7	21.7	23.5	59.6
Other western Europe, total	18.4	26.6	29.7	50.6	13.5	24.3	33.0	34.8	34.1	33.4
Belgium	0.7	0.2	0.3	0.2	0.1	2.3	0.5	2.5	6.3	3.0
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	—
Ireland	2.4	1.2	2.0	5.8	2.5	2.9	3.5	3.0	2.0	0.9
Netherlands	1.9	3.3	3.5	5.3	4.4	10.1	13.8	19.7	15.9	14.1
Portugal	0.2	0.2	0.2	0.4	0.0	0.0	0.0	0.0	0.0	—
Spain	10.5	18.3	17.0	29.4	0.1	0.1	0.3	0.1	0.1	0.6
Switzerland	2.7	3.3	6.7	9.6	6.4	8.8	15.0	9.3	9.8	14.8
Nordic countries, total	8.8	16.2	16.2	19.7	15.1	16.3	20.3	30.7	61.7	46.5
Denmark	4.3	8.7	4.1	11.1	11.3	8.9	11.3	18.4	45.5	23.7
Finland	0.8	0.7	0.5	0.1	0.9	4.4	7.9	11.1	14.8	22.0
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Norway	0.6	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.7	0.5
Sweden	3.1	6.6	11.6	8.4	2.8	2.9	1.0	1.0	0.6	0.3
Central/eastern Europe, total	0.8	1.3	1.3	2.9	6.5	12.5	12.4	11.1	7.8	8.2
Austria	0.6	0.7	1.1	2.2	4.3	5.6	3.9	2.1	0.8	1.2
Czech Republic	0.0	0.0	0.0	0.1	0.6	3.6	2.6	4.3	4.0	3.7
Czechoslovakia	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	—
Poland	0.2	0.5	0.1	0.3	0.8	2.1	4.2	2.9	1.2	1.1
Russia	0.0	0.0	0.1	0.2	0.6	1.2	1.7	1.7	1.7	2.2
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	—
Slovenia	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	—
Asia, total	628.6	651.2	979.8	1,332.1	854.8	1,191.9	881.6	929.8	606.8	827.7
China	0.6	0.5	1.1	6.5	5.3	16.4	31.3	36.7	17.8	40.0
Hong Kong	10.5	8.0	10.4	11.6	8.7	9.6	4.0	3.0	2.8	4.9
India	2.9	2.3	1.9	1.1	1.4	2.9	4.8	5.1	4.8	10.4
Indonesia	0.3	0.1	0.2	0.1	0.0	0.2	0.1	0.6	0.1	3.2
Japan	485.3	461.8	673.9	847.2	478.9	660.8	629.9	690.5	426.6	586.8
Malaysia	16.1	17.4	80.1	96.5	76.8	95.8	83.6	98.0	75.3	74.7
Philippines	12.0	12.5	12.6	8.1	5.7	9.1	1.2	0.6	0.2	0.1
Singapore	24.9	43.6	49.3	81.5	53.0	54.5	14.2	18.6	13.3	16.6
South Korea	43.0	34.4	47.8	60.4	41.3	74.0	75.4	42.7	39.5	57.3
Taiwan	31.2	68.5	98.5	215.7	179.7	262.7	23.6	19.7	18.8	26.7
Thailand	1.8	2.1	3.9	3.5	3.9	6.0	13.6	14.4	7.5	6.9
South America, total	1.9	1.4	1.2	0.3	0.1	0.2	0.3	0.4	0.5	1.4
Argentina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Brazil	1.9	1.4	1.2	0.3	0.1	0.2	0.3	0.4	0.5	1.4
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Africa, total	0.2	0.0	0.0	0.2	0.0	0.1	0.2	0.0	0.0	0.1
Kenya	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Africa	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	—
All other countries	96.3	127.7	147.4	94.5	5.4	3.6	6.8	13.3	18.5	62.2

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-5.
U.S. trade imports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Aerospace										
Total	10,713.8	12,106.0	12,687.2	11,613.3	11,135.6	10,540.5	12,805.7	17,106.5	21,984.0	23,256.9
NAFTA partners, total	2,414.0	2,575.0	2,336.9	2,059.2	2,317.2	2,381.5	3,185.8	3,745.0	4,688.1	5,014.9
Canada	2,363.8	2,526.1	2,291.1	2,019.4	2,281.5	2,343.5	3,140.0	3,683.4	4,619.5	4,932.4
Mexico	50.2	48.8	45.8	39.8	35.7	38.0	45.8	61.6	68.6	82.4
Europe four, total	5,981.8	6,727.5	7,642.7	7,169.4	6,660.1	5,842.4	6,619.5	9,186.6	12,288.4	13,495.9
France	2,702.7	3,420.8	4,093.6	4,038.8	3,424.9	2,621.0	2,717.0	3,781.1	5,399.3	5,695.0
Germany	519.7	470.7	517.4	450.9	620.4	785.5	937.5	1,159.4	1,859.8	2,586.4
Italy	363.3	582.1	510.6	356.4	268.6	363.9	505.6	394.5	499.0	505.4
United Kingdom	2,396.1	2,253.9	2,521.0	2,323.3	2,346.2	2,072.0	2,459.3	3,851.6	4,530.3	4,709.0
Other western Europe, total	543.4	933.6	1,115.0	889.3	674.2	483.9	359.3	548.9	554.9	468.4
Belgium	63.1	51.6	50.8	64.3	50.1	36.3	59.4	109.0	124.7	119.7
Greece	0.0	0.2	0.5	0.7	0.9	0.5	2.4	4.7	3.4	4.7
Ireland	23.5	17.5	9.7	13.5	15.3	18.0	38.3	66.1	55.3	49.4
Netherlands	325.6	665.6	883.8	699.3	500.6	303.0	118.4	218.5	214.0	157.0
Portugal	0.3	0.1	0.2	0.4	0.4	0.1	0.1	0.3	3.4	0.4
Spain	107.4	156.3	145.2	90.2	84.2	81.8	81.7	92.2	83.0	75.2
Switzerland	23.3	42.1	24.7	20.8	22.8	44.4	58.9	58.0	71.1	62.2
Nordic countries, total	376.7	395.8	287.6	194.5	169.2	217.5	418.7	379.4	414.9	239.3
Denmark	17.9	12.8	9.8	10.8	14.9	12.1	15.7	18.6	24.5	20.0
Finland	2.4	3.6	4.8	6.5	12.8	25.2	29.3	24.8	19.1	17.2
Iceland	0.0	0.5	0.0	0.0	0.2	0.0	2.0	0.1	0.1	0.2
Norway	59.5	48.3	41.2	41.2	38.4	41.0	44.1	55.2	72.4	59.0
Sweden	296.9	330.6	231.7	136.0	103.0	139.3	327.6	280.7	298.8	142.8
Central/eastern Europe, total	9.9	8.0	8.1	9.8	18.2	35.5	38.5	102.4	72.9	90.3
Austria	5.7	5.2	5.0	3.7	3.7	5.9	6.7	21.1	41.2	30.1
Czech Republic	0.0	0.0	0.0	0.4	0.7	0.9	4.2	5.7	7.6	8.1
Czechoslovakia	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.0	0.0	0.4	0.0	0.1	0.5	0.1	0.4	0.3	1.0
Poland	4.2	2.7	2.2	1.9	4.3	4.1	5.1	8.0	11.2	11.3
Russia	0.0	0.0	0.1	3.7	9.4	24.1	22.4	67.2	12.6	39.8
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	—
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Asia, total	678.5	865.2	857.2	875.0	917.4	975.2	1,440.8	2,216.7	2,423.4	2,062.3
China	21.7	25.6	29.6	62.3	40.2	51.4	74.5	49.5	63.7	51.2
Hong Kong	6.3	0.9	2.3	1.5	10.7	2.1	3.8	12.9	7.5	3.2
India	0.4	2.9	0.7	0.5	0.8	0.5	0.8	3.1	9.8	3.1
Indonesia	0.9	6.6	2.5	3.0	6.1	12.0	1.9	9.7	2.0	10.1
Japan	487.3	614.5	575.3	526.4	564.8	638.2	1,002.5	1,647.1	1,783.0	1,609.6
Malaysia	0.0	0.5	1.5	0.7	1.1	1.1	11.8	7.7	17.6	66.4
Philippines	0.4	1.0	1.5	2.9	8.4	9.4	9.8	17.2	9.8	10.3
Singapore	56.1	85.0	110.0	140.9	179.1	164.1	201.6	268.2	277.9	84.4
South Korea	101.1	117.1	127.8	117.7	89.6	70.1	92.4	133.4	193.8	188.3
Taiwan	4.3	10.4	5.9	18.2	16.0	13.7	7.3	25.0	48.4	34.9
Thailand	0.0	0.7	0.2	0.9	0.5	12.7	34.4	42.9	9.9	0.5
South America, total	320.2	171.0	111.3	111.6	69.2	123.5	163.5	325.3	887.5	1,284.5
Argentina	0.1	0.1	0.6	0.5	0.7	3.4	6.1	2.0	2.3	0.6
Brazil	320.0	170.7	110.5	110.7	68.2	119.7	156.7	322.8	884.8	1,280.7
Chile	0.0	0.2	0.1	0.3	0.2	0.3	0.1	0.4	0.3	0.6
Peru	0.0	0.0	0.1	0.1	0.1	0.1	0.5	0.0	0.1	2.5
Africa, total	0.2	0.1	1.8	1.6	1.1	3.8	1.7	0.9	2.7	1.4
Kenya	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.4
Nigeria	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.0	0.0	—
South Africa	0.1	0.0	1.5	1.3	1.0	3.6	1.6	0.8	2.6	1.1
All other countries	389.2	429.9	326.7	302.9	309.0	477.1	578.1	601.3	651.3	599.9
Weapons										
Total	129.9	167.8	156.9	164.7	143.9	205.0	264.8	299.0	287.6	305.0
NAFTA partners, total	29.3	33.2	40.2	19.9	8.2	13.1	23.2	45.5	56.1	56.7
Canada	29.0	27.1	25.1	12.1	6.4	13.1	20.7	27.0	27.9	23.9
Mexico	0.4	6.1	15.0	7.8	1.8	0.0	2.5	18.5	28.3	32.8
Europe four, total	61.4	76.0	62.3	90.7	71.4	93.0	131.6	128.3	113.6	75.5
France	2.0	13.4	25.2	0.6	0.0	2.0	2.3	1.3	2.1	1.9
Germany	20.4	19.2	7.6	11.7	15.9	33.9	82.8	80.6	68.6	32.1
Italy	4.0	0.8	0.7	0.5	0.8	3.7	4.1	1.8	0.7	0.4
United Kingdom	34.9	42.5	28.8	77.9	54.7	53.3	42.4	44.6	42.2	41.1
Other western Europe, total	6.1	13.8	8.3	5.6	3.5	9.5	11.2	11.8	5.4	12.1
Belgium	0.9	1.1	0.3	2.6	2.1	2.6	2.0	1.8	0.0	1.3
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Netherlands	3.0	4.1	1.6	1.4	0.2	3.5	5.8	7.7	1.6	2.8
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Spain	0.9	0.6	0.7	0.8	0.9	3.3	3.0	1.9	3.0	4.9
Switzerland	1.3	8.0	5.7	0.7	0.3	0.2	0.4	0.4	0.7	0.3

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-5.
U.S. trade imports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Nordic countries, total	14.8	18.5	13.3	4.8	5.5	0.7	2.0	11.3	9.2	16.1
Denmark	1.1	0.6	1.4	2.0	0.9	0.1	0.2	0.3	0.4	0.5
Finland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Iceland	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Norway	0.0	0.3	0.8	0.4	0.1	0.6	1.0	2.4	4.2	7.7
Sweden	13.7	14.9	11.0	2.4	4.5	0.0	0.8	8.6	4.6	8.0
Central/eastern Europe, total	0.3	0.5	0.9	2.2	2.6	5.5	4.7	3.5	7.4	9.5
Austria	0.3	0.5	0.8	0.5	1.0	1.4	0.6	0.7	0.9	1.0
Czech Republic	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.2	—
Czechoslovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.5	1.2
Poland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	—
Russia	0.0	0.0	0.1	1.3	1.6	4.1	4.0	2.6	4.7	7.3
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Asia, total	6.5	8.4	8.1	11.2	13.1	57.3	74.4	75.5	80.0	123.6
China	0.9	0.8	1.4	3.4	2.3	14.3	29.1	31.6	30.5	42.3
Hong Kong	0.1	0.1	0.1	0.2	0.0	0.0	0.6	0.0	0.5	0.6
India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	1.2
Indonesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Japan	2.2	2.6	2.6	3.5	4.7	11.6	9.2	9.9	9.6	13.8
Malaysia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Philippines	0.0	0.0	0.0	0.3	0.0	5.2	5.1	2.2	3.3	3.1
Singapore	0.4	0.2	0.3	0.0	0.8	1.4	1.6	1.4	1.0	2.3
South Korea	1.4	2.8	2.4	2.7	3.7	7.8	5.3	6.1	5.7	6.5
Taiwan	1.5	1.9	1.2	1.2	1.6	16.8	23.3	24.0	28.8	53.8
Thailand	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	—
South America, total	2.0	0.2	0.1	0.1	0.6	0.1	0.2	0.2	0.1	0.3
Argentina	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.0	—
Brazil	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	—
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Peru	2.0	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2
Africa, total	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.4
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Africa	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.4
All other countries	9.4	17.1	23.7	30.0	38.8	25.6	17.6	22.7	15.5	10.7

Nuclear technology

Total	4.5	3.0	5.2	7.9	22.7	39.8	85.1	134.9	765.1	1,176.4
NAFTA partners, total	0.2	0.3	0.2	0.1	0.2	7.5	8.2	13.2	18.8	16.1
Canada	0.2	0.3	0.2	0.1	0.2	7.5	8.2	13.2	18.8	16.0
Mexico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Europe four, total	0.5	0.9	2.8	3.0	0.8	15.4	33.9	32.0	217.8	407.9
France	0.2	0.0	2.2	1.9	0.5	3.1	5.7	11.3	120.3	267.6
Germany	0.1	0.7	0.0	1.1	0.2	4.4	19.0	9.5	48.4	44.2
Italy	0.0	0.0	0.0	0.0	0.1	1.0	0.6	0.1	0.2	0.3
United Kingdom	0.2	0.1	0.6	0.1	0.0	7.0	8.6	11.1	48.8	95.9
Other western Europe, total	0.0	0.0	0.0	0.0	0.0	1.9	1.7	2.4	31.5	30.1
Belgium	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.6	0.7
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Ireland	0.0	0.0	0.0	0.0	0.0	0.8	0.8	1.5	0.4	—
Netherlands	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	30.5	29.2
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Spain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Switzerland	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2
Nordic countries, total	1.9	0.4	0.0	0.0	1.0	7.3	33.6	12.4	47.2	17.1
Denmark	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Finland	0.0	0.0	0.0	0.0	0.0	4.5	4.9	5.0	2.9	6.1
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Norway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Sweden	1.9	0.4	0.0	0.0	1.0	2.7	28.7	7.4	44.2	11.0
Central/eastern Europe, total	0.0	0.0	0.0	0.0	17.7	0.3	1.7	25.9	411.0	586.3
Austria	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	—
Czech Republic	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.2
Czechoslovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Poland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Russia	0.0	0.0	0.0	0.0	17.7	0.0	1.7	25.8	410.8	586.0
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Asia, total	1.8	1.4	2.2	4.3	2.4	6.7	4.7	3.7	5.0	77.6
China	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.5	0.6	73.5
Hong Kong	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
India	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.3	1.5

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-5.
U.S. trade imports of advanced technology products: 1990–99
(Millions of U.S. dollars)

Region or country/economy	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Indonesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Japan	1.8	1.4	2.2	4.3	2.4	5.8	3.6	2.1	2.9	2.3
Malaysia	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	—
Philippines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Singapore	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	—
South Korea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Taiwan	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
Thailand	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.2
South America, total	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	—
Argentina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Brazil	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	—
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Africa, total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Nigeria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
All other countries	0.0	0.0	0.1	0.5	0.6	0.7	1.4	45.4	33.9	41.2
Computer software										
Total	157.4	196.0	295.0	360.0	436.5	559.8	588.0	506.9	744.8	665.9
NAFTA partners, total	58.4	72.4	112.0	113.7	120.2	136.9	175.4	97.1	124.4	142.4
Canada	55.9	68.5	108.6	108.4	116.9	133.9	170.8	90.1	118.4	137.0
Mexico	2.5	3.9	3.5	5.3	3.3	3.0	4.6	7.0	6.0	5.4
Europe four, total	29.7	37.9	57.2	67.2	70.8	94.3	93.9	74.9	126.2	103.9
France	7.4	5.3	7.5	12.8	13.5	14.9	14.4	9.5	9.6	12.0
Germany	8.7	12.2	21.9	16.5	23.3	39.6	39.6	30.5	50.5	44.1
Italy	1.0	0.6	1.2	1.7	2.9	4.8	3.4	2.8	2.9	3.1
United Kingdom	12.7	19.8	26.6	36.1	31.1	35.0	36.5	32.1	63.2	44.7
Other western Europe, total	18.6	17.1	34.9	70.2	85.8	116.9	87.6	84.3	85.2	59.2
Belgium	1.9	2.1	1.0	1.2	1.4	4.8	7.4	8.1	18.8	2.8
Greece	0.0	0.0	0.0	0.1	0.1	0.0	1.2	0.8	0.2	—
Ireland	2.0	4.3	17.6	34.7	33.9	11.0	12.7	6.9	10.4	16.0
Netherlands	10.6	9.2	14.3	31.5	46.1	96.6	60.3	63.7	49.7	33.0
Portugal	0.0	0.0	0.0	0.1	0.2	0.4	0.2	0.2	0.1	0.1
Spain	0.1	0.1	0.3	0.3	0.6	0.9	2.1	1.6	1.1	1.2
Switzerland	3.9	1.3	1.7	2.4	3.6	3.1	3.7	3.0	4.8	6.1
Nordic countries, total	3.0	4.1	3.4	11.4	12.3	13.5	22.9	13.6	14.6	16.6
Denmark	1.7	2.8	2.1	9.0	8.9	3.4	5.5	2.8	3.4	3.7
Finland	0.5	0.3	0.3	0.7	0.7	3.4	9.0	2.7	1.5	4.2
Iceland	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.1	—
Norway	0.1	0.3	0.3	0.4	0.5	0.6	0.9	1.0	0.9	0.8
Sweden	0.7	0.7	0.6	1.3	2.2	5.8	7.3	7.1	8.7	7.8
Central/eastern Europe, total	0.5	0.5	0.7	1.4	2.1	4.8	7.0	6.6	26.6	12.6
Austria	0.5	0.4	0.5	1.0	1.1	3.0	2.3	2.8	3.2	2.0
Czech Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.6	1.5
Czechoslovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	—
Hungary	0.0	0.0	0.1	0.2	0.6	0.8	1.0	1.2	0.0	0.7
Poland	0.0	0.0	0.0	0.1	0.3	0.3	0.8	0.9	18.4	6.1
Russia	0.0	0.0	0.0	0.0	0.0	0.7	2.7	1.7	3.0	2.3
Slovakia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Asia, total	42.5	60.0	76.8	86.4	124.7	171.7	178.9	184.1	336.5	311.5
China	0.1	0.6	4.8	8.9	6.2	3.4	3.5	1.8	15.1	15.6
Hong Kong	1.5	2.4	9.1	2.0	2.5	2.3	3.5	1.1	24.8	55.9
India	0.7	0.7	0.7	2.4	4.8	7.6	7.4	22.6	11.9	1.9
Indonesia	0.0	0.0	0.0	0.0	0.8	0.1	0.0	0.1	0.4	0.2
Japan	22.2	31.3	28.7	25.6	26.2	30.1	24.9	32.8	80.0	74.1
Malaysia	0.1	0.0	0.1	0.2	0.1	1.4	55.1	48.8	92.4	16.3
Philippines	0.0	0.0	0.0	0.0	0.1	1.1	0.4	0.3	2.1	2.6
Singapore	9.7	11.7	17.9	32.2	69.5	108.8	41.8	8.1	10.0	21.8
South Korea	2.2	2.6	2.0	2.1	1.1	1.3	3.2	2.2	3.3	43.0
Taiwan	5.9	10.7	13.4	12.8	13.3	15.6	39.0	64.7	92.6	79.5
Thailand	0.0	0.0	0.0	0.1	0.1	0.1	0.1	1.6	3.9	0.6
South America, total	0.2	0.1	0.1	0.9	7.8	4.7	1.1	8.9	1.0	3.0
Argentina	0.0	0.0	0.0	0.8	7.5	4.4	0.3	6.9	0.5	0.4
Brazil	0.0	0.0	0.1	0.0	0.2	0.2	0.3	0.0	0.4	2.6
Chile	0.2	0.0	0.0	0.0	0.1	0.2	0.5	1.9	0.1	—
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Africa, total	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.2	0.1	1.0
Kenya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
Nigeria	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
South Africa	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	1.0
All other countries	4.5	3.8	9.8	8.7	12.7	16.9	21.1	37.2	30.2	15.7

NAFTA = North American Free Trade Agreement; — = less than \$50,000

SOURCE: Special tabulations provided by Foreign Trade Division, U.S. Bureau of Census.

Appendix table 6-6.

U.S. receipts and payments of royalties and fees associated with affiliated and unaffiliated foreign residents: 1987–99

(Millions of U.S. dollars)

Year	Total	Foreign residents	
		Affiliated	Unaffiliated
Receipts			
1987	9,914	7,629	2,285
1988	11,802	9,156	2,646
1989	13,064	10,207	2,857
1990	16,634	13,251	3,384
1991	18,107	14,395	3,712
1992	19,715	15,718	3,997
1993	20,323	15,707	4,616
1994	26,712	20,275	6,437
1995	30,289	22,859	7,430
1996	32,470	24,556	7,914
1997	33,639	24,876	8,763
1998	36,197	26,809	9,388
1999	36,467	26,307	10,160
Payments			
1987	1,844	1,296	547
1988	2,585	1,410	1,175
1989	2,602	1,778	824
1990	3,135	2,206	929
1991	4,076	2,996	1,080
1992	5,074	3,381	1,694
1993	4,765	3,364	1,401
1994	5,852	3,934	1,919
1995	6,919	5,257	1,663
1996	7,837	5,406	2,431
1997	9,614	7,202	2,412
1998	11,713	8,754	2,959
1999	13,275	10,208	3,067
Balance			
1987	8,070	6,333	1,738
1988	9,217	7,746	1,471
1989	10,462	8,429	2,033
1990	13,499	11,045	2,455
1991	14,031	11,399	2,632
1992	14,641	12,337	2,303
1993	15,558	12,343	3,215
1994	20,860	16,341	4,518
1995	23,370	17,602	5,767
1996	24,633	19,150	5,483
1997	24,025	17,674	6,351
1998	24,484	18,055	6,429
1999	23,192	16,099	7,093

NOTE: Details may not add to totals because of rounding. Affiliate refers to a business enterprise located in one country that is directly or indirectly owned or controlled by an entity in another country. Controlling interest must equal 10 percent or more of its voting stock, or its equivalent.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, Vol. 80, No. 10 (October 2000).

See figure 6-12.

Appendix table 6-7.

U.S. receipts and payments of royalties and license fees generated from exchange and use of industrial processes with unaffiliated foreign residents, by region or country/economy: 1987–99
 (Millions of U.S. dollars)

Region or country/economy	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Receipts													
All countries/economies	1,678	1,962	2,051	2,333	2,434	2,525	2,820	3,026	3,513	3,566	3,544	3,573	3,551
Canada	87	60	62	79	62	47	41	54	55	82	92	83	100
Europe	446	517	530	630	575	637	642	768	829	1,042	979	1,194	1,365
Eastern Europe ^a	7	32	12	15	8	D	16	30	21	11	7	14	22
European Union ^b	353	410	378	500	475	498	496	598	756	937	885	1,082	1,243
Belgium-Luxembourg	29	37	34	22	34	25	49	49	88	83	90	57	103
France	73	82	52	78	91	64	89	107	84	123	92	143	196
Germany ^c	79	73	77	107	97	108	109	142	171	219	184	248	332
Italy	57	73	68	105	70	99	69	71	66	66	77	53	84
Netherlands	31	40	37	59	35	60	27	30	36	80	71	59	42
Spain	13	26	20	21	29	20	23	18	31	28	29	28	23
Sweden ^b	31	19	53	44	35	48	53	55	106	137	115	149	151
United Kingdom	60	67	81	91	106	103	103	113	115	129	147	157	163
Norway	10	10	32	10	14	5	3	15	5	3	4	3	1
Switzerland	16	14	23	24	15	50	45	44	41	84	76	90	94
All other Europe	29	32	32	37	28	36	29	26	6	7	7	5	5
South/Central America	64	48	54	59	85	73	D	83	D	D	81	D	60
Brazil	19	7	14	8	8	6	7	8	9	14	17	18	11
Mexico	14	13	18	23	31	29	28	33	24	26	32	40	26
All other	31	28	22	28	46	38	D	42	D	D	11	D	5
Africa	D	22	24	22	34	27	36	26	35	28	15	17	20
Middle East	D	18	17	22	25	21	33	20	35	25	41	21	51
Asia and Pacific	936	1,185	1,248	1,465	1,638	1,704	1,966	2,063	2,462	2,299	2,299	2,136	1,921
China	NA	33	31	43	52	47	29						
Hong Kong	4	6	7	6	6	11	12	15	22	19	21	27	16
India	18	40	26	21	14	34	D	28	27	37	29	20	16
Indonesia	5	5	8	11	20	13	20	20	15	13	26	11	17
Japan	723	883	897	1,028	1,219	1,268	1,434	1,372	1,548	1,429	1,508	1,199	1,077
Malaysia	—	—	2	2	2	7	18	19	D	D	12	43	12
Philippines	3	4	4	4	2	3	D	1	2	2	7	7	6
Singapore	30	13	8	19	21	20	20	73	34	37	39	41	41
South Korea	34	107	167	249	225	220	278	396	607	478	389	489	489
Taiwan	21	46	34	55	57	42	34	39	80	130	144	194	168
All other ^d	98	81	95	70	72	86	D	67	96	D	1	2	3
All other countries	145	112	116	56	15	16	102	12	97	90	37	122	34
Payments													
All countries/economies	459	525	612	665	796	818	1,054	1,034	948	1,319	1,417	1,536	1,883
Canada	9	11	8	16	11	10	8	11	13	66	89	90	152
Europe	320	355	433	482	637	635	820	712	572	782	729	763	830
Eastern Europe ^a	—	—	1	D	1	3	9	D	1	4	2	2	1
European Union ^b	248	279	342	360	426	417	472	395	461	649	558	599	643
Belgium-Luxembourg	5	7	10	15	14	21	22	27	30	D	30	29	31
France	33	37	51	54	73	D	92	92	121	192	D	D	D
Germany ^c	100	112	137	133	182	D	187	113	110	148	149	124	161
Italy	25	20	22	29	34	24	9	7	9	49	35	48	23
Netherlands	5	5	8	9	14	14	15	22	27	24	30	44	36
Spain	—	—	1	1	—	1	1	—	1	1	1	4	D
Sweden ^b	D	D	D	62	122	D	198	D	3	49	61	55	54
United Kingdom	72	90	102	111	106	125	123	104	126	135	118	152	189
Norway	1	D	D	D	D	D	D	D	D	5	9	6	9
Switzerland	27	9	6	19	26	45	60	114	79	72	86	82	105
All other Europe	44	67	84	41	62	170	81	203	31	52	74	74	72
South/Central America	5	—	—	—	1	D	D	D	D	D	28	D	80
Brazil	—	—	—	—	—	2	2	—	—	4	D	18	
Mexico	3	—	—	—	—	1	—	1	D	5	D	D	D
All other	2	NA	NA	NA	1	D	D	D	D	D	D	D	D
Africa	—	4	—	0	—	—	—	1	—	4	5	1	—
Middle East	2	3	4	3	4	5	9	9	13	12	9	5	15

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-7.

U.S. receipts and payments of royalties and license fees generated from exchange and use of industrial processes with unaffiliated foreign residents, by region or country/economy: 1987–99
 (Millions of U.S. dollars)

Region or country/economy	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Asia and Pacific	95	112	120	160	140	152	200	283	333	401	530	563	766
China	NA	7	—	D	D	D	103						
Hong Kong	1	—	—	0	—	—	—	2	3	D	2	2	2
India	—	—	—	—	—	—	0	—	—	D	D	5	5
Indonesia	0	—	0	0	0	—	0	0	—	—	—	—	1
Japan	88	108	109	141	138	145	191	262	307	308	360	385	610
Malaysia	0	0	0	0	0	0	—	0	—	3	3	—	—
Philippines	0	—	1	0	0	—	—	—	—	1	—	2	1
Singapore	—	0	0	0	—	D	—	—	—	—	2	2	—
South Korea	—	—	D	D	—	1	1	6	D	D	D	15	D
Taiwan	—	—	D	1	—	2	2	2	—	2	4	9	D
All other ^d	—	4	10	D	2	D	4	3	26	—	D	D	D
All other countries	28	40	47	4	3	16	17	18	17	54	27	114	40
Balance													
All countries/economies	1,219	1,437	1,439	1,668	1,638	1,707	1,776	1,992	2,565	2,247	2,127	2,037	1,668
Canada	78	49	54	63	51	37	33	43	42	16	3	-7	-52
Europe	126	162	97	148	-62	2	-178	56	257	260	250	431	535
Eastern Europe ^a	7	7	11	D	7	D	7	D	20	7	5	12	21
European Union ^b	105	131	36	140	49	81	24	203	295	288	327	483	600
Belgium-Luxembourg	24	30	24	7	20	4	27	61	53	D	27	43	72
France	40	45	1	24	18	64	-3	15	-37	-69	D	D	D
Germany ^c	-21	-39	-60	-26	-85	108	-78	29	61	71	35	124	171
Italy	32	53	46	76	36	75	60	64	57	17	42	5	61
Netherlands	26	35	29	50	21	46	12	8	9	56	41	15	6
Spain	13	26	19	20	29	19	22	18	30	27	28	24	D
Sweden ^b	D	D	D	-18	-87	D	-145	D	103	88	54	94	97
United Kingdom	-12	-23	-21	-20	0	-22	-20	9	-11	-6	29	5	-26
Norway	9	D	D	D	D	D	D	D	D	-2	-5	-3	-8
Switzerland	-11	5	17	5	-11	5	-15	-70	-38	12	-10	8	-11
All other Europe	21	31	61	8	-111	263	-137	-147	-38	-28	-77	-52	-65
South/Central America	9	48	54	59	83	NA	D	83	D	D	53	D	-20
Brazil	19	7	14	8	8	6	5	6	9	—	13	D	-7
Mexico	11	13	18	23	30	28	28	32	24	21	D	D	D
All other	29	28	22	28	45	38	D	42	D	D	D	D	D
Africa	0	18	24	22	34	27	36	25	35	24	10	16	—
Middle East	-2	15	13	19	21	16	24	11	22	13	32	16	36
Asia and Pacific	841	1,073	1,128	1,305	1,498	1,552	1,766	1,780	2,129	1,898	1,769	1,573	1,155
China	NA	24	31	D	D	D	-74						
Hong Kong	3	6	7	6	6	11	10	12	22	17	19	20	14
India	18	40	26	21	14	34	NA	28	27	D	D	15	11
Indonesia	5	5	8	11	20	13	20	20	15	—	—	—	16
Japan	635	775	788	887	1,081	1,123	1,243	1,110	1,241	1,121	1,148	814	467
Malaysia	NA	0	2	2	2	7	18	19	D	D	9	—	—
Philippines	3	4	3	4	2	3	NA	1	2	1	—	5	5
Singapore	30	13	8	19	21	20	20	73	34	—	37	39	—
South Korea	34	107	167	249	225	219	277	390	607	D	D	474	D
Taiwan	21	46	34	54	57	40	32	37	80	128	140	185	D
All other ^d	92	77	85	70	70	86	NA	64	70	D	D	D	D
All other countries	115	72	69	52	-49	73	-83	-6	80	36	10	8	14

— = less than \$500,000; D = withheld to avoid disclosing operations of individual companies; NA = not available

NOTE: Industrial processes include patents and other proprietary inventions and technology. Affiliate refers to a business enterprise located in one country that is directly or indirectly owned or controlled by an entity in another country. Controlling interest must equal 10 percent or more of its voting stock, or its equivalent.

^aEastern Europe comprises Albania, Azerbaijan, Belarus, Bulgaria, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Slovakia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

^bAustria, Finland, and Sweden joined the European Union in 1995. Other countries of the European Union not listed separately are Denmark, Greece, Ireland, and Portugal.

^cGerman data before 1990 are for the former West Germany only. Beginning in 1990, these data are also for the former East Germany.

^dIncludes data for China for years before 1994.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, Vol. 80, No. 10 (October 2000): 119–161. See also figure 6-13.

Appendix table 6-8.
Leading indicators of technological competitiveness: 1999
 (Index)

Region or country/economy	National orientation	Socioeconomic infrastructure	Technological infrastructure	Productive capacity
South Korea	74.9	73.5	44.6	48.8
Taiwan	90.7	74.2	43.6	53.7
Malaysia	69.5	58.9	31.9	44.1
China	65.3	52.4	46.4	41.9
Philippines	60.9	63.7	24.4	42.6
Thailand	50.7	46.5	20.5	30.6
India	67.7	48.4	46.8	51.3
Indonesia	53.9	43.8	19.2	23.7
Mexico	41.8	40.4	21.8	24.8
Brazil	61.5	49.1	40.4	39.6
Argentina	41.3	53.3	27.5	31.0
Venezuela	39.8	49.4	21.3	24.3
Hungary	73.7	60.9	43.0	42.2
Poland	69.6	58.4	38.2	44.3
Czech Republic	68.2	58.9	41.5	44.6
Ireland	92.2	75.6	48.0	55.9
Israel	92.0	74.1	58.2	50.6

NOTES: For score and indicator calculations, raw data were transformed into scales of 0–100 for each indicator component and then averaged to generate comparable indicators with a 0–100 range. For survey items, 100 represents the highest response category for each question; for statistical data, 100 typically represents the value attained by the country with the largest value among the 30 countries included in the study. In the indicator formulations cited below, each term carries equal weight.

National orientation (NO) provides evidence that a nation is taking directed action to achieve technological competitiveness. These actions could take place in the business, government, or cultural sector or any combination of the three.

Indicator formulation: NO = [Q1 + (Q2 + Q3)/2 + Q4 + F1V99]/4.

Data used: Published data from the PRS Group, Political and Economic Forecast Table, "Political Risk Letter" for 1999 rating each country's investment risk (F1V99); and survey data assessing each country's national strategy to promote high-technology development (Q1), social influences favoring technological change (Q2 and Q3), and entrepreneurial spirit (Q4).

Socioeconomic infrastructure (SE) assesses the social and economic institutions that support and maintain the physical, human, organizational, and economic resources essential to the functioning of a modern, technology-based industrial nation.

Indicator formulation: SE = (Q5 + Q10 + HMHS99)/3.

Data used: Published data on the percentage of students enrolled in secondary and tertiary education (HMHS99) from the Harbison-Myers Skills Index for 1999, table 2.10, *1999 World Development Indicators*, World Bank, 1999; and survey data assessing each country's efforts to attract foreign investment (Q10) and the mobility of capital (Q5).

Technological infrastructure (TI) assesses the institutions and resources that contribute to a nation's capacity to develop, produce, and market new technology.

Indicator formulation: TI = [(Q7 + Q8)/2 + Q9 + Q11 + EDP99 + S&E96]/5.

Data used: Published data from *Statistical Yearbook 1998*, UNESCO, 1998, on the number of scientists and engineers involved in research in 1996 (S&E 96), national purchases of electronic data processing equipment (EDP99) from Reed Electronics Research, *Yearbook of World Electronics Data 1999/2000*, Reed Business Information Ltd., England, 1999; and survey data assessing linkages of R&D to industry (Q9), output of indigenous academic science and engineering (Q7 and Q8), and the ability to make effective use of technological knowledge (Q11).

Productive capacity (PC) assesses the physical and human resources devoted to manufacturing products and the efficiency with which those resources are employed.

Indicator formulation: PC = (Q6 + Q12 + Q13 + A2699)/4.

Data used: Published data on electronics production (A2696) from Reed Electronics Research, *Yearbook of World Electronics Data 1999/2000*, Reed Business Information Ltd., England, 1999; and survey data assessing the supply and quality of skilled labor (Q6), capability of the indigenous management (Q13), and the existence of indigenous suppliers of components for technology-intensive products (Q12).

SOURCE: Alan L. Porter, J. David Roessner, Nils Newman, and Xiao-Yin Jin, *Indicators of Technology-Based Competitiveness of Nations, Summary Report*, report to the National Science Foundation under purchase order no. B04841X-00-0 (Atlanta: Georgia Institute of Technology, 2000).

Appendix table 6-9.

United States industrial R&D performance: 1987–97
 (Millions of dollars purchasing power parity—ISIC REV. 3)

ISIC code and industry	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total business enterprise	92,155.0	97,014.8	102,054.7	109,727.3	116,952.0	119,110.0	117,399.0	119,595.0	132,103.0	144,667.0	157,539.0
15-37 Total manufacturing	84,311.0	86,502.0	88,024.0	88,934.0	88,506.0	90,177.0	90,931.0	96,307.0	104,237.0	116,953.0	125,902.0
15+16 Food, beverages, and tobacco	1,206.0	1,229.3	1,275.3	1,414.4	1,277.0	1,386.0	1,345.0	1,476.0	1,566.0	1,564.0	1,907.9
15 Food, products, and beverages	NA	NA	NA	NA	NA	1,346.0	1,305.0	NA	NA	NA	NA
16 Tobacco products	NA	NA	NA	NA	NA	40.0	40.0	NA	NA	NA	NA
17-19 Textiles, fur, and leather	243.0	259.9	260.4	296.9	283.0	275.0	318.2	356.8	395.1	485.7	535.0
17 Textiles	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18 Wearing apparel and fur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
19 Leather products and footwear	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20-22 Wood, paper, printing, and publishing	741.0	961.0	1,075.8	1,303.8	1,445.5	1,491.9	1,916.2	2,010.0	2,010.5	2,925.0	2,284.3
20 Wood and cork (not furniture)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21 Pulp, paper, and paper products	604.0	788.1	879.0	1,059.0	1,235.1	1,245.4	1,649.1	1,693.8	1,773.1	2,181.1	1,901.5
22 Publ., print, and repro. of rec. media	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23-25 Coke, petrol., nuclear fuel, chem., rub. plas.	12,139.0	13,816.5	15,133.7	16,749.6	18,382.2	18,981.3	20,851.0	21,030.0	20,627.8	22,009.9	22,259.3
23 Coke, ref. petrol. prod., and nucl. fuel	1,897.0	1,997.0	2,180.0	2,306.0	2,498.0	2,277.0	2,152.0	1,950.0	1,760.0	1,654.0	1,689.7
24 Chemicals and chemical products	9,635.0	11,067.0	12,069.0	13,291.0	14,648.0	15,381.0	17,520.6	17,463.0	17,613.2	18,867.1	19,130.7
24-2423 Chemicals (less pharmaceuticals)	5,535.0	6,160.8	6,261.4	7,003.7	7,587.2	7,437.0	8,374.6	7,830.0	7,398.2	9,094.1	7,232.1
2423 Pharmaceuticals	4,100.0	4,906.2	5,807.7	6,287.4	7,060.8	7,944.0	9,146.0	9,633.0	10,215.0	9,773.0	11,898.7
25 Rubber and plastic products	607.0	752.5	884.7	1,152.6	1,236.2	1,323.3	1,178.4	1,617.0	1,254.6	1,488.9	1,438.9
26 Non-metallic mineral products	995.0	737.7	636.8	615.8	483.5	509.7	538.0	591.0	448.0	468.0	633.5
27 Basic metals	730.0	637.1	686.0	739.0	714.0	522.0	669.0	690.0	593.0	746.2	988.0
271+2731 Basic metals, ferrous	251.8	252.8	251.3	238.1	227.5	224.4	289.0	296.7	221.9	251.1	533.3
272+2732 Basic metals, non-ferrous	478.2	384.2	434.7	500.9	486.5	297.6	380.0	393.3	371.1	495.1	454.7
28 Fabricated metal products	783.0	881.0	904.0	939.0	974.0	1,017.0	1,158.0	1,111.0	1,023.0	1,551.1	1,818.0
29-35 Machinery eq., instruments, and trans. equip.	67,091.0	67,559.4	67,602.7	66,262.0	64,323.0	65,334.0	63,469.0	68,534.0	77,078.0	86,713.1	94,931.0
29 Machinery, N.E.C.	2,428.0	2,682.2	2,729.1	2,753.0	3,554.8	3,538.3	3,431.0	4,004.0	5,041.0	6,108.1	5,888.7
30 Office, account. and computing machin.	9,347.0	10,444.3	11,704.6	11,693.0	11,220.2	11,404.2	9,313.0	9,664.0	8,869.0	13,221.0	18,238.3
31 Electrical machinery	1,239.0	1,419.2	2,126.0	3,444.0	3,090.5	2,722.0	2,537.0	2,664.0	3,473.0	3,360.0	4,507.4
32 Electro. equip. (radio, TV and commun.)	14,609.0	12,708.8	11,192.0	9,956.0	10,324.5	10,638.0	10,812.0	12,674.0	15,278.0	19,138.0	20,464.6
321 Electro. comp. (inc. semi-conduc.)	4,286.0	4,133.1	4,025.4	3,914.1	NA						
32-321 TV, radio, and communications equipm.	10,323.0	8,575.7	7,166.6	6,041.9	NA						
33 Instruments, watches, and clocks	5,222.0	5,530.0	5,992.0	7,055.0	8,705.0	9,542.0	10,119.0	11,441.0	11,976.0	12,149.0	13,835.0
34 Motor vehicles	9,279.4	10,085.4	11,020.1	10,255.6	10,387.6	9,923.6	11,718.0	13,405.7	15,003.4	16,021.9	15,201.5
35 Other transport equipment	24,966.6	24,689.6	22,838.9	21,105.4	17,040.4	17,570.4	15,539.0	14,681.3	17,437.6	16,715.1	16,795.5
351 Ships	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
353 Aerospace	24,458.0	24,168.0	22,331.0	20,635.0	16,629.0	17,158.0	15,056.0	14,260.0	16,951.0	16,224.0	16,298.0
352+359 Other transport N.E.C.	508.6	521.6	507.9	470.4	411.4	412.4	483.0	421.3	486.6	491.1	497.5
36 Furniture, other manufacturing N.E.C.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
361 Furniture	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
369 Other manufacturing N.E.C.	383.0	420.1	449.3	613.5	623.9	660.0	666.5	508.1	495.6	490.0	545.0
37 Recycling	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
40+41 Electricity, gas, and water	266.0	236.0	234.0	244.0	278.0	292.0	342.0	403.0	440.0	352.0	300.0
45 Construction	NA	NA	NA	NA	NA	NA	NA	NA	NA	283.0	261.0
50-99 Total services	7,844.0	10,512.8	14,030.7	20,793.3	28,446.0	28,933.0	26,468.0	23,288.0	27,866.0	26,958.0	30,964.0
50-52 Wholesale, ret. trad., mot. veh. Repair, etc.	NA	NA	NA	NA	NA	NA	NA	NA	NA	6,389.0	8,150.0
55 Hotels and restaurants	NA	NA	NA	NA	NA	NA	NA	NA	NA	272.0	155.0
60-63 Transport and storage	NA	NA	NA	NA	NA	NA	NA	NA	NA	223.0	681.0

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-9.

United States industrial R&D performance: 1987–97
 (Millions of dollars purchasing power parity—ISIC REV. 3)

ISIC code and industry	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
64 Communications	NA	4,103.0	2,017.0								
641 Post	NA	73.0	58.0								
642 Telecommunications	NA	4,030.0	1,959.0								
65–67 Financ. intermediation (inc. Insur.)	NA	1,297.0	1,499.1								
70–74 Real estate, renting, and busin. activ.	NA										
72 Computer and related activities	3,805.0	3,828.0	3,784.0	4,629.0	5,769.0	6,663.0	5,003.0	4,292.8	7,822.0	6,944.1	8,868.0
722 Software consultancy	NA										
72-722 Other computer services N.E.C.	NA										
73 Research and development	919.0	1,164.0	1,405.0	1,335.0	9,302.0	9,667.0	2,541.0	3,765.0	4,584.4	5,484.0	7,029.3
70+71+74 Other business activities N.E.C.	NA										
75–99 Comm., soc., and pers. serv. activ., etc.	NA										

NA = not available; N.E.C. = not elsewhere classified; ISIC = International Standard Industrial Classification

NOTES: Wood, paper, printing, publishing (ISIC, R-3: 20...22) includes Furniture (ISIC, R-3: 361). Pulp, paper and paper products (ISIC, R-3: 21) includes Publ., print. and repro. of rec. media (ISIC, R-3: 22). Other transport N.E.C. (ISIC, R-3: 3 for 1987–95). Total services (ISIC, R-3: 50...99) includes Agriculture (ISIC, R-3: 1+2+5); Mining (ISIC, R-3: 10...14); Electricity, gas, and water (ISIC, R-3: 40+41), and Construction (ISIC, R-3: 45). Industry level data may not add to totals due to rounding and incomplete data.

SOURCE: Organisation for Economic Co-operation and Development, EAS, (ANBERD database), March 2000.

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Appendix table 6-10.

Japan industrial R&D performance: 1987–97

(Millions of dollars purchasing power parity—ISIC REV. 3)

ISIC code and industry	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total business enterprise	30,925.10	35,388.82	41,375.98	47,523.08	50,482.11	50,854.71	49,204.39	49,614.66	55,288.88	60,733.64	64,575.71
15–37 Total manufacturing	29,842.85	34,085.26	39,868.31	45,644.64	48,589.47	48,682.68	46,969.70	47,396.68	53,198.34	57,372.25	61,230.50
15 Food, products, and beverages	NA										
16 Tobacco products	NA										
17 Textiles	NA										
18 Wearing apparel and fur	NA										
19 Leather products and footwear	NA										
20 Wood and cork (not furniture)	76.67	87.39	150.81	126.33	160.93	145.88	168.18	176.91	202.80	197.20	206.32
21 Pulp, paper, and paper products	262.61	333.97	398.03	442.31	474.44	397.01	394.92	405.01	478.75	502.39	526.88
22 Publ., print., and repro. of rec. media	NA										
23 Coke, ref. petrol. prod., and nucl. fuel	334.18	367.42	423.11	471.59	458.95	478.24	444.85	437.88	398.67	377.44	395.94
24 Chemicals and chemical products	5,218.51	5,834.45	6,602.42	7,265.64	8,019.21	8,535.76	8,486.05	8,556.87	9,149.50	9,620.20	9,749.96
25 Rubber and plastic products	814.70	943.36	1,168.55	1,176.92	1,325.71	1,326.90	1,294.52	1,375.70	1,452.13	1,589.15	1,569.59
26 Non-metallic mineral products	847.06	973.66	1,112.68	1,104.10	1,345.88	1,139.81	1,078.42	1,009.34	1,176.70	1,290.42	1,304.99
27 Basic metals	1,664.88	1,813.76	1,985.80	2,278.97	2,637.52	2,434.98	2,361.51	2,086.15	2,160.36	2,142.28	2,299.76
28 Fabricated metal products	451.60	439.15	549.37	664.62	711.19	674.35	654.28	616.90	694.90	892.12	816.20
29 Machinery, N.E.C.	2,534.45	2,771.73	3,386.70	4,110.58	4,348.97	4,235.74	4,355.86	4,617.70	4,934.57	5,253.76	5,659.64
30 Office, account., and computing machin.	2,223.00	2,954.65	4,084.60	4,591.31	4,829.56	4,382.79	4,358.16	4,295.91	4,987.63	6,020.88	6,403.69
31 Electrical machinery	3,170.02	3,636.40	4,353.89	5,108.72	5,233.18	5,145.59	5,274.48	5,564.23	6,077.88	6,601.65	6,918.09
32 Electro. equip. radio, TV, and commun.)	5,580.99	6,293.91	6,652.30	7,445.77	8,106.26	8,487.04	7,702.46	8,194.16	9,701.59	9,798.03	10,749.65
33 Instruments, watches, and clocks	972.51	1,170.36	1,337.24	1,722.05	1,626.78	1,740.53	1,747.16	1,842.57	2,091.31	2,211.74	2,582.11
34 Motor vehicles	3,771.69	4,511.46	5,385.90	6,556.84	6,549.94	6,738.62	5,807.45	5,521.40	6,721.17	7,757.38	8,493.96
35 Other transport equipment	423.30	360.23	454.83	562.78	715.58	543.77	576.79	507.25	564.67	658.89	873.70
36 Furniture, other manufacturing N.E.C.	259.80	278.49	312.13	356.36	401.43	411.79	394.02	473.28	467.79	483.50	559.45
37 Recycling	NA										
45 Construction	610.97	727.75	930.39	1,090.26	1,060.12	1,295.05	1,348.92	1,226.51	1,202.55	1,355.64	1,364.19
50–99 Total services	830.72	1,012.31	1,196.68	1,315.03	1,071.55	1,062.80	1,111.65	1,249.34	1,661.42	2,578.89	2,895.59
55 Hotels and restaurants	NA										
64 Communications	790.34	975.35	1,148.25	1,234.93	947.48	963.86	1,020.66	1,178.33	1,566.80	1,440.45	1,755.73
72 Computer and related activities	NA	1,069.70	1,051.32								
73 Research and development	NA										

N.E.C. = not elsewhere classified; NA = not available; ISIC = International Standard Industrial Classification

NOTES: Wood, paper, printing, publishing (ISIC, R-3: 20...22) includes Furniture (ISIC, R-3: 361). Pulp, paper, and paper products (ISIC, R-3: 21) includes Publ., print., and repro. of Rec. Media (ISIC, R-3: 22). Industry level data may not add to totals due to rounding and incomplete data.

SOURCE: Organisation for Economic Co-operation and Development, EAS (ANBERD database), March 2000.

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Appendix table 6-11.
European Union industrial R&D performance: 1992–1997
 (Millions of dollars purchasing power parity—ISIC REV. 3)

ISIC code and industry	1992	1993	1994	1995	1996	1997
Total business enterprise	75,197.2	74,769.4	75,824.3	80,011.5	82,703.0	85,285.3
15-37 Total manufacturing	65,730.9	65,160.3	66,341.5	69,872.3	71,802.5	73,520.8
15 Food, products, and beverages	NA	NA	NA	NA	NA	NA
16 Tobacco products	NA	NA	NA	NA	NA	NA
17 Textiles	NA	NA	NA	NA	NA	NA
18 Wearing apparel and fur	NA	NA	NA	NA	NA	NA
19 Leather products and footwear	NA	NA	NA	NA	NA	NA
20 Wood and cork (not furniture)	NA	NA	NA	NA	NA	NA
21 Pulp, paper, and paper products	NA	NA	NA	NA	NA	NA
22 Publ., print., and repro. of rec. media	NA	NA	NA	NA	NA	NA
23 Coke, ref. petrol. prod., and nucl. fuel	1,175.3	1,143.6	1,053.2	1,085.8	1,076.1	1,041.3
24 Chemicals and chemical products	14,663.8	14,805.8	15,140.2	15,953.5	16,577.6	17,640.8
25 Rubber and plastic products	1,044.8	1,111.5	1,145.1	1,216.0	1,385.1	1,457.2
26 Nonmetallic mineral products	668.8	668.0	699.9	735.0	767.3	744.4
27 Basic metals	1,028.1	983.8	979.9	1,053.8	1,019.7	1,012.4
28 Fabricated metal products	906.3	958.9	978.0	1,078.2	1,120.5	1,316.5
29 Machinery, N.E.C.	5,900.0	5,881.5	6,198.7	6,343.7	6,427.4	6,595.0
30 Office, account., and computing machin.	2,754.1	2,588.1	2,290.1	2,313.8	2,097.0	1,677.9
31 Electrical machinery	4,202.4	4,262.1	4,280.0	4,449.3	3,947.3	3,503.2
32 Electro. equip. (radio, TV, and commun.)	8,042.8	8,245.7	8,746.6	9,367.0	10,273.2	10,953.0
33 Instruments, watches, and clocks	4,387.0	4,287.5	4,300.2	4,598.2	4,362.3	4,395.1
34 Motor vehicles	10,317.8	10,123.6	10,285.8	11,096.8	11,833.9	12,556.7
35 Other transport equipment	8,017.1	7,348.2	7,341.9	7,531.0	7,832.5	7,570.7
36 Furniture, other manufacturing N.E.C.	NA	NA	NA	NA	NA	NA
37 Recycling	NA	NA	NA	NA	NA	NA
45 Construction	NA	NA	NA	NA	NA	NA
50-99 Total services	6,601.7	7,055.2	7,272.3	7,579.1	8,362.4	9,260.5
55 Hotels and restaurants	NA	NA	NA	NA	NA	NA
64 Communications	NA	NA	NA	NA	NA	NA
72 Computer and related activities	NA	NA	NA	2,158.8	NA	2,874.7
73 Research and development	NA	NA	NA	NA	NA	NA

NA = not available; N.E.C. = not elsewhere classified; ISIC = International Standard Industrial Classification

NOTES: Wood, paper, printing, publishing (ISIC, R-3: 20...22) includes Furniture (ISIC, R-3: 361). Pulp, paper, and paper products (ISIC, R-3: 21) includes Publ., print., and repro. of Rec. Media (ISIC, R-3: 22). Industry level data may not add to totals due to rounding and incomplete data.

SOURCE: Organisation for Economic Co-operation and Development, EAS (ANBERD database), March 2000.

Appendix table 6-12.

U.S. patents granted, by residence of inventor/type of ownership: Pre-1986 and 1986–99

Country/economy	Pre-1986	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total	1,488,258	70,860	82,952	77,924	95,537	90,364	96,513	97,444	98,342	101,676	101,419	109,645	111,983	147,519	153,487
U.S. origin	1,009,796	38,126	43,520	40,496	50,186	47,390	51,178	52,253	53,231	56,066	55,739	61,104	61,707	80,291	83,907
Foreign origin	478,462	32,734	39,432	37,428	45,351	42,974	45,335	45,191	45,111	45,610	45,680	48,541	50,276	67,228	69,580
Japan	118,256	13,209	16,557	16,158	20,168	19,525	21,026	21,925	22,293	22,384	21,764	23,053	23,179	30,840	31,104
Germany	115,565	6,856	7,884	7,353	8,352	7,614	7,680	7,309	6,893	6,731	6,600	6,818	7,008	9,095	9,337
United Kingdom	59,971	2,405	2,775	2,579	3,094	2,789	2,800	2,425	2,295	2,234	2,478	2,453	2,678	3,464	3,572
France	43,680	2,369	2,874	2,661	3,140	2,866	3,030	3,029	2,909	2,779	2,821	2,788	2,958	3,674	3,820
Canada	24,789	1,314	1,594	1,489	1,959	1,859	2,037	1,964	1,944	2,008	2,104	2,232	2,379	2,974	3,226
Switzerland	26,193	1,211	1,374	1,245	1,363	1,284	1,335	1,197	1,127	1,169	1,056	1,112	1,090	1,278	1,279
Italy	15,050	995	1,183	1,076	1,297	1,259	1,209	1,271	1,285	1,215	1,078	1,200	1,239	1,584	1,492
Sweden	16,236	883	948	777	837	768	716	626	636	706	806	854	867	1,225	1,401
Netherlands	13,841	722	922	806	1,060	960	992	855	800	852	799	797	808	1,226	1,247
Taiwan	742	208	343	457	591	732	906	1,001	1,189	1,443	1,620	1,897	2,057	3,100	3,693
South Korea	213	46	84	97	159	225	405	538	779	943	1,161	1,493	1,891	3,259	3,562
Australia	4,722	374	389	416	501	432	463	409	378	467	459	471	478	720	707
Belgium	5,368	243	295	302	359	313	324	325	350	352	397	488	515	693	648
Austria	5,154	357	345	337	402	393	359	371	312	289	337	362	376	387	479
Israel	1,880	189	245	238	325	299	304	335	314	350	384	484	534	754	743
Former Soviet Union	5,921	116	121	96	161	174	178	66	65	53	12	16	4	6	3
Finland	1,938	210	275	232	230	304	331	361	293	312	358	444	452	595	649
Denmark	3,104	182	204	151	221	158	210	193	197	207	199	241	333	392	487
Spain	1,465	97	115	126	131	130	153	133	158	141	148	157	177	248	222
Norway	1,723	81	135	121	126	112	111	108	117	126	130	139	142	198	224
South Africa	1,549	88	107	103	134	114	105	97	93	101	123	111	101	115	110
Hungary	1,338	131	127	94	129	93	85	88	61	46	50	43	25	50	39
Czechoslovakia	1,812	35	46	33	34	39	27	17	13	19	15	8	9	9	5
Mexico	1,217	37	49	44	39	32	29	39	45	44	40	39	45	57	76
New Zealand	617	52	68	55	58	51	41	44	39	37	44	52	85	114	114
Hong Kong	326	31	34	41	48	52	50	60	60	57	86	88	81	160	155
Ireland	369	28	38	43	65	54	56	55	53	50	50	78	73	74	94
Brazil	426	27	34	29	36	41	62	40	57	60	63	63	62	74	91
Argentina	487	17	18	16	20	17	16	20	24	32	31	30	35	43	44
China	109	9	23	47	52	47	50	41	53	48	62	46	62	72	90
India	271	18	12	14	14	23	22	24	30	27	37	35	47	85	112
Singapore	62	3	11	6	18	12	15	32	38	51	53	88	94	120	144
Russian Federation	NA	NA	NA	NA	NA	NA	NA	NA	3	38	98	116	111	189	181
Poland	523	14	13	8	14	17	8	5	8	8	8	15	11	15	19
Luxembourg	312	31	22	29	29	17	27	26	28	22	24	18	22	20	22
Venezuela	176	21	24	20	23	20	25	22	31	23	29	25	25	27	39
Others (125)	3,057	125	144	129	162	149	148	140	141	186	156	187	223	292	350
Ownership															
U.S. corporations	767,158	29,490	33,726	31,437	38,664	36,093	39,133	40,308	41,825	44,036	44,035	48,741	50,220	66,053	69,392
U.S. Government	34,050	1,022	981	733	880	983	1,183	1,161	1,167	1,258	1,028	923	944	1,027	983
U.S. individuals	245,582	9,477	10,887	10,122	13,028	12,542	13,207	12,751	12,281	12,805	12,885	13,729	12,914	16,407	16,698
Foreign corporations	356,610	26,545	32,371	30,960	37,506	35,548	37,594	38,239	38,401	38,788	38,688	41,477	42,907	57,668	60,168
Foreign government	5,377	479	555	453	441	423	472	463	434	296	245	259	273	256	162
Foreign individuals	79,481	3,847	4,432	4,219	5,018	4,775	4,924	4,522	4,234	4,493	4,538	4,516	4,725	6,108	6,084

NA = not applicable

SOURCE: U.S. Patent and Trademark Office, Information Products Division, Technology Assessment and Forecast Branch, special tabulations (November 2001).

Appendix table 6-13.
Number of U.S. patent applications: 1989–99

Residence of inventor	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total	152,750	164,558	164,306	173,075	174,743	189,857	212,377	195,187	215,257	243,062	270,187
United States	82,370	90,643	87,955	92,425	99,955	107,233	123,958	106,892	120,445	135,483	149,825
Total foreign	70,380	73,915	76,351	80,650	74,788	82,624	88,419	88,295	94,812	107,579	120,362
Japan	31,791	34,113	36,846	38,633	34,816	37,768	39,872	39,510	41,767	45,260	47,821
Germany	11,437	11,292	10,874	11,652	10,500	11,324	11,853	11,550	12,333	13,885	16,978
Taiwan	1,507	2,035	2,252	2,667	2,874	3,560	4,054	4,766	5,492	7,412	9,411
United Kingdom	5,066	4,959	4,557	4,587	4,414	4,856	5,202	4,791	5,147	6,110	6,948
France	4,268	4,771	4,723	4,828	4,320	4,528	5,001	4,486	4,759	5,249	6,216
Canada	3,425	3,511	3,641	3,761	3,910	4,255	4,745	4,443	4,694	5,689	6,149
South Korea	607	775	1,321	1,471	1,624	2,354	2,820	4,248	4,920	5,452	5,033
Italy	1,964	2,093	2,123	2,288	1,906	1,998	2,128	2,062	2,119	2,313	2,577
Sweden	1,114	1,057	1,086	1,072	1,157	1,405	1,500	1,481	1,980	2,359	2,570
Switzerland	2,019	1,931	1,902	1,922	1,759	1,852	1,917	1,609	1,637	1,875	2,144
Netherlands	1,570	1,588	1,397	1,547	1,472	1,455	1,570	1,559	1,726	1,816	2,058
Israel	624	608	633	780	803	1,040	1,072	1,042	1,198	1,442	2,009
Australia	800	811	783	863	781	921	1,007	1,057	1,006	1,420	1,462
Finland	513	595	592	576	568	707	745	836	891	970	1,376
Belgium	572	592	614	692	685	862	1,001	930	894	1,059	1,204
Denmark	284	370	358	378	376	445	618	496	634	748	863
Austria	511	560	516	566	526	599	619	543	552	710	823
Spain	302	289	258	313	269	315	357	359	370	409	464
Singapore	37	36	63	89	104	134	144	176	213	336	460
Norway	141	164	169	212	190	203	243	227	303	337	415
Hong Kong	108	86	132	150	155	219	163	222	207	274	403
Russian Federation	NA	NA	NA	183	153	206	221	254	249	273	388
India	50	58	51	64	54	70	91	115	137	180	271
China	112	111	126	129	135	100	144	142	117	181	257
Ireland	99	130	116	103	104	149	131	114	138	228	252
New Zealand	121	105	91	107	85	130	137	174	174	187	240
Brazil	111	88	124	112	105	156	115	145	134	165	186
South Africa	215	185	186	207	246	238	187	189	174	211	179
Mexico	77	76	106	105	82	105	99	97	110	141	147
Hungary	174	138	103	76	69	76	70	59	40	73	120
Argentina	32	56	59	59	56	75	65	78	77	119	96
Malaysia	14	11	22	16	20	37	30	30	61	41	76
Luxembourg	35	32	36	39	35	39	20	31	32	36	59
Greece	33	27	20	28	19	27	29	23	30	45	50
Venezuela	26	48	43	47	38	43	32	38	40	35	42
Thailand	3	8	4	11	15	19	21	20	21	26	41
Iceland	3	3	10	16	3	6	6	13	8	25	31
Poland	24	13	21	16	27	20	19	22	19	19	31
Czech Republic	NA	NA	NA	NA	1	15	14	17	30	34	30
Turkey	3	6	3	2	3	5	6	7	10	16	29
Portugal	9	6	3	11	9	14	10	16	12	17	28
Liechtenstein	15	13	14	19	13	15	13	17	19	24	26
Ukraine	NA	NA	NA	4	16	14	17	18	24	28	22
Monaco	3	4	3	8	6	3	6	12	10	13	21
Slovenia	NA	NA	NA	8	19	11	13	19	24	29	21
Colombia	5	10	5	13	3	18	19	10	6	12	20
Philippines	13	9	10	10	9	7	12	9	15	13	20
Chile	11	13	12	12	11	11	10	23	17	17	16
Czechoslovakia	71	39	32	41	26	13	22	13	10	19	16
Egypt	4	3	4	10	4	6	2	2	10	11	16
Bahamas	2	7	2	6	11	8	15	9	14	20	15
Croatia	NA	NA	NA	NA	6	9	15	16	20	20	12
Indonesia	3	4	11	11	7	5	4	11	3	9	12
Bulgaria	30	31	11	7	3	4	6	5	4	3	11
Saudi Arabia	12	8	12	11	17	23	24	19	17	26	11
Belarus	NA	NA	NA	4	8	5	7	9	3	5	10
Other foreign	410	437	271	108	161	142	156	126	161	153	176

NA = not available

SOURCE: U.S. Patent and Trademark Office, Information Products Division, Technology Assessment and Forecast Branch, special tabulations (November 2001).

Appendix table 6-14.
Patents granted in selected countries, by inventor residence

Granting country	Total patents	Patents to non- residents as percentage of total	Percentage of patents granted to residents of:									
			United States	Japan	Germany	France	United Kingdom	Italy	Sweden	India	Former Soviet Union	
			1985									
Japan	50,100	15.5	46.4	0.0	19.6	6.4	5.4	1.5	2.3	0.0	1.4	17.0
Germany	33,377	60.4	29.2	23.9	0.0	12.4	6.7	2.8	2.8	0.0	1.7	20.5
France	37,530	73.8	27.4	15.8	25.9	0.0	5.9	4.1	2.4	0.0	1.3	17.0
United Kingdom	34,480	82.3	28.6	20.8	20.9	8.4	0.0	2.9	2.2	0.0	0.6	15.6
Italy	47,924	79.0	6.1	2.3	8.0	4.2	2.0	0.0	0.4	0.0	0.0	77.0
Canada	18,697	92.8	54.8	11.7	8.8	5.6	5.3	1.5	1.8	0.0	0.4	10.0
Mexico	1,374	93.4	56.3	6.6	7.6	7.0	4.0	2.6	1.5	0.0	0.5	14.0
Brazil	3,934	84.6	37.0	7.3	20.7	9.9	4.0	4.6	2.8	0.0	0.4	13.3
South Korea	2,268	84.6	30.4	42.3	6.2	5.4	3.5	1.8	1.4	0.0	0.0	9.1
Soviet Union	74,745	2.0	13.7	8.4	16.9	8.2	3.1	3.9	2.7	0.0	0.0	42.9
India	1,814	76.2	33.5	6.4	11.2	8.1	10.1	3.4	1.3	0.0	3.0	23.0
1990												
Japan	59,401	15.2	45.5	0.0	21.3	7.7	5.1	2.4	2.4	0.0	1.1	14.4
Germany	42,860	61.2	27.8	28.4	0.0	10.8	6.5	3.7	2.7	0.0	0.7	19.3
France	35,149	74.6	24.9	18.2	26.9	0.0	6.0	4.2	2.2	0.0	0.6	17.0
United Kingdom	32,179	86.4	25.6	20.8	22.8	9.1	0.0	3.2	2.0	0.0	0.4	15.9
Italy	17,794	98.7	23.7	9.4	28.5	12.4	6.8	0.0	2.4	0.0	0.1	16.7
Canada	14,187	92.2	52.2	13.7	8.3	6.0	5.4	2.0	1.8	0.0	0.3	10.3
Mexico	1,752	92.0	63.4	5.4	7.3	5.1	3.2	2.4	0.8	0.1	0.2	12.2
Brazil	3,355	86.5	41.4	6.6	16.1	9.4	7.4	4.4	2.3	0.0	0.7	11.8
South Korea	7,762	67.1	23.0	66.7	2.5	1.8	0.8	1.1	0.3	0.0	0.0	3.8
Soviet Union	84,658	1.4	12.0	8.1	18.8	7.8	3.6	6.7	3.8	0.0	0.0	39.2
India	1,611	81.0	35.3	9.3	14.6	6.2	7.8	3.1	1.2	0.0	3.4	19.1
1994												
Japan	82,400	11.7	50.1	0.0	18.9	6.5	4.1	2.5	1.8	0.0	0.0	16.3
Germany	57,803	64.1	28.2	32.5	0.0	9.8	5.9	4.0	2.0	0.0	0.0	17.4
France	54,964	75.3	25.0	23.5	25.5	0.0	5.3	3.9	1.6	0.0	0.0	15.2
United Kingdom	48,772	89.3	24.9	25.7	22.0	8.0	0.0	3.3	1.5	0.0	0.0	14.5
Italy	37,096	85.5	24.8	13.4	27.6	10.2	5.9	0.0	1.9	0.0	0.1	16.1
Canada	11,641	92.7	51.3	18.8	7.6	5.6	4.6	1.5	1.0	0.0	0.0	9.5
Mexico	4,367	93.4	58.0	4.3	9.7	5.1	4.3	2.4	1.1	0.0	0.0	14.9
Brazil	2,469	83.0	41.3	6.6	12.5	6.9	4.9	6.4	2.7	0.0	0.0	18.7
South Korea	11,683	50.6	22.9	62.6	3.9	2.5	1.1	0.8	0.5	0.0	0.0	5.8
Russian Federation	20,581	22.0	4.0	2.1	4.7	1.1	0.8	1.5	0.6	0.0	0.0	85.2
India	1,735	74.2	42.9	6.1	12.4	7.1	6.6	2.6	1.6	0.0	0.2	20.4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 6-14.

Patents granted in selected countries, by inventor residence

Granting country	Total patents	Patents to non- residents as percentage of total	Percentage of patents granted to residents of:									
			United States	Japan	Germany	France	United Kingdom	Italy	Sweden	India	Former Soviet Union	
			1996									
Japan	215,100	12.7	51.4	0.0	17.4	6.1	3.6	2.1	1.6	0.0	0.0	17.6
Germany	55,444	64.3	29.7	32.8	0.0	9.1	5.5	3.8	2.0	0.0	0.1	17.0
France	49,245	75.7	27.3	24.0	22.9	0.0	5.1	3.7	1.7	0.0	0.0	15.3
United Kingdom	44,335	90.3	27.4	25.5	20.0	7.7	0.0	3.1	1.7	0.0	0.0	14.6
Italy	37,935	78.2	26.8	14.3	25.2	10.0	5.4	0.0	1.9	0.0	0.0	16.4
Canada	7,145	90.1	52.2	24.1	6.0	4.1	3.1	1.4	0.9	0.0	0.0	8.1
Mexico	3,186	96.4	67.9	3.3	7.0	3.5	2.3	1.7	2.9	0.0	0.0	11.5
Brazil	1,487	87.3	37.8	8.2	15.7	7.4	4.2	4.3	2.3	0.0	0.0	20.1
South Korea	16,516	49.6	23.6	57.7	5.1	2.7	1.9	1.0	0.8	0.0	0.1	7.2
Russian Federation	19,678	16.2	8.2	3.5	8.9	3.5	2.4	2.3	1.1	0.0	0.0	70.2
India	1,020	64.8	42.4	6.1	15.3	6.4	8.2	1.4	0.5	0.0	0.3	19.7
1998												
Japan	141,448	11.1	44.8	0.0	17.5	6.9	4.3	2.2	1.6	0.0	0.0	22.7
Germany	51,685	62.7	30.4	28.6	0.0	9.9	6.2	3.9	2.2	0.0	0.1	18.7
France	46,213	73.9	27.5	21.4	23.3	0.0	5.8	3.7	1.9	0.0	0.1	16.3
United Kingdom	43,181	88.8	27.7	23.1	19.8	8.1	0.0	3.0	1.7	0.0	0.1	16.4
Italy	38,988	65.1	27.5	12.7	24.3	10.7	6.4	0.0	2.2	0.0	0.1	16.3
Canada	9,572	90.1	54.5	17.5	6.7	3.7	4.4	1.4	1.2	0.0	0.1	10.4
Mexico	3,219	95.6	66.9	3.3	7.0	3.8	3.7	1.8	2.2	0.0	0.0	11.2
Brazil	2,825	85.6	39.8	4.8	17.1	6.9	3.8	4.8	3.2	0.0	0.0	19.6
South Korea	52,890	32.1	25.6	54.2	6.7	2.7	1.8	1.0	0.5	0.0	0.0	7.5
Russian Federation	23,315	17.6	20.8	4.0	14.4	7.2	4.7	3.1	3.7	0.0	0.0	42.1
India	1,711	65.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
China	4,735	65.1	25.5	30.1	10.3	4.6	4.3	2.5	1.8	0.1	0.0	20.8

NA = not available

NOTE: German data before 1996 are for the former West Germany only.

SOURCE: World Intellectual Property Organization, "Industrial Property Statistics" (Geneva, 1985–98).

See figures 6-22 and 6-23.

Appendix table 6-15.

Human DNA sequence patents: Number of international patent families, by priority country and priority year

Priority country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total	
Total	12	16	45	55	105	106	126	138	149	196	249	267	353	415	533	610	949	1,379	1,745	362	7,810	
United States	6	10	30	28	58	52	61	82	99	129	171	197	237	300	390	447	743	1,046	1,244	280	5,610	
Japan	0	1	7	13	26	22	35	19	23	32	35	23	31	37	47	53	77	101	143	22	747	
Great Britain	6	5	6	5	8	11	9	12	4	11	10	13	22	26	39	31	46	74	113	23	474	
European Patent Office	0	0	0	2	0	1	5	3	6	9	4	4	12	7	13	15	21	25	30	61	11	240
Germany	0	0	1	2	3	5	3	8	1	3	12	6	9	13	13	25	25	30	61	11	231	
France	0	0	0	1	4	4	5	2	7	4	7	11	12	7	10	13	14	20	18	4	143	
Australia	0	0	1	1	2	1	2	4	0	0	2	5	3	1	4	10	7	11	5	0	59	
Israel	0	0	0	1	1	4	0	0	3	2	0	0	4	7	7	3	3	4	11	4	54	
Denmark	0	0	0	0	0	3	0	1	4	2	3	2	6	6	2	0	1	4	11	3	48	
Canada	0	0	0	0	2	0	0	0	0	2	1	1	2	4	0	2	2	12	10	2	40	
Sweden	0	0	0	0	0	1	0	2	0	0	1	0	4	3	2	1	4	7	9	0	34	
Italy	0	0	0	0	0	0	0	0	0	1	0	2	2	10	1	3	1	0	3	5	1	29
South Korea	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	2	0	3	10	1	19	
China	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	14	0	17	
Netherlands	0	0	0	0	0	1	2	3	0	0	0	1	0	0	0	1	0	0	1	0	9	
Switzerland	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	1	0	0	2	1	0	8
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	2	1	7
Austria	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	2	1	0	6
Patent Cooperation Treaty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	1	0	5
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	4
Finland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	4
Ireland	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	4	
Norway	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0	4
Belgium	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
India	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
Soviet Union	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Czech Republic	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Cuba	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Honduras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Yugoslavia	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1

NOTES: Patents in a family are linked together through "priority" details. Priority is established by the original patent application date in the first country where the application is filed. The European Patent Office (EPO) and the Patent Cooperation Treaty (PCT) represent two alternatives to filing multiple applications at individual patent country offices. For these two filing routes, an applicant makes an initial single filing at the responsible office (i.e., the European Patent Office for EPO applications and the World Intellectual Property Office (WIPO) for PCT applications). The applicant indicates the member countries in which it wishes to seek protection by listing the appropriate designated states on the application. In the past, applicants using these routes generally filed priority applications in their home country and then filed at the EPO and/or PCT. Increasingly, however, applicants are filing priority applications through these two venues, rather than through their home country. For this reason, the EPO or PCT shows as "priority country" in some tables.

SOURCE: *International Analysis of Human DNA Sequence Patenting*, submitted to the National Science Foundation by Mogee Research and Analysis Associates (Reston, VA, April 10, 2001).

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Appendix table 6-16.

Human DNA sequence patents: Number of active assignees (not including individual inventors), by priority country and priority year: 1980–99

Priority country	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total	9	17	36	51	90	107	127	140	145	200	218	230	279	306	356	411	445	505	688	242
United States	7	9	23	18	46	43	60	62	81	116	136	138	156	185	205	234	279	283	371	155
Japan	3	5	12	26	29	35	35	37	44	39	41	46	51	53	62	57	77	72	21	0
Great Britain	2	5	6	6	5	6	11	13	7	10	15	14	20	20	43	30	35	40	45	16
European Patent Office	0	0	0	3	0	1	4	5	4	8	3	4	10	5	9	18	21	26	44	7
Germany	0	0	1	2	2	3	3	4	1	5	8	9	12	12	8	19	13	19	27	9
France	0	0	0	1	1	5	3	4	9	6	8	8	5	10	12	17	13	15	21	5
Australia	0	0	1	2	2	6	4	3	0	0	3	5	3	3	5	10	11	9	21	7
Canada	0	0	0	0	20	0	0	0	0	5	1	2	0	3	3	3	1	8	13	1
China	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	5	12	8
Israel	0	0	0	1	1	1	0	0	2	2	0	0	1	2	5	4	2	1	10	2
Sweden	0	0	0	0	0	1	0	4	0	0	1	0	6	4	1	2	5	3	9	0
Denmark	0	0	0	0	0	6	0	3	2	2	1	1	3	3	1	0	1	4	6	2
Italy	0	0	0	0	0	0	0	0	1	0	2	2	13	3	3	1	0	2	4	1
South Korea	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0	3	1	3	10	2
Netherlands	0	0	0	0	0	4	3	4	0	0	0	3	0	0	1	1	0	0	1	0
Russia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	0
Austria	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2	3
Belgium	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1
Soviet Union	0	0	0	4	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Switzerland	0	0	0	0	0	2	0	1	1	1	0	0	0	0	0	0	0	1	1	0
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	1
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
Czech Republic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
Patent Cooperation Treaty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Ireland	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0
Finland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Norway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Argentina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
India	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Cuba	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Honduras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Romania	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Yugoslavia	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

NOTES: Patents in a family are linked together through "priority" details. Priority is established by the original patent application date in the first country where the application is filed. Only companies, universities, nonprofit organizations, and government agencies are counted; individuals are not included. This table reflects the number of unique organizations that have filed patent applications, not the number of applications they have filed. Data for 1999 are most likely incomplete because of the 18-month lag between the date a patent application is filed and the date it is published. The European Patent Office (EPO) and the Patent Cooperation Treaty (PCT) represent two alternatives to filing multiple applications at individual patent country offices. For these two filing routes, an applicant makes an initial single filing at the responsible office (i.e., the European Patent Office for EPO applications and the World Intellectual Property Office (WIPO) for PCT applications). The applicant indicates the member countries in which it wishes to seek protection by listing the appropriate designated states on the application. In the past, applicants using these routes generally filed priority applications in their home country and then filed at the EPO and/or PCT. Increasingly, however, applicants are filing priority applications through these two venues, rather than through their home country. For this reason, the EPO or PCT shows as "priority country" in some tables.

SOURCE: *International Analysis of Human DNA Sequence Patenting*, submitted to the National Science Foundation by Mogee Research and Analysis Associates (Reston, VA, April 10, 2001).

Appendix table 6-17.

Internet-related business methods patents: Number of international patent families by priority country and priority year: 1995–2000

Priority country	1995	1996	1997	1998	1999	2000	Total
Total	36	76	160	301	301	1	875
United States	21	45	104	217	247	0	634
Japan	4	14	15	14	16	0	63
Great Britain	1	4	9	9	8	0	31
Germany	1	2	2	9	5	0	19
Finland	1	3	0	5	6	0	15
European Patent Office	2	0	6	5	0	1	14
France	0	1	3	7	1	0	12
Sweden	0	1	6	5	0	0	12
Israel	0	0	2	6	3	0	11
South Korea	1	1	3	2	3	0	10
Canada	1	0	2	4	1	0	8
Australia	1	1	2	3	0	0	7
Netherlands	1	1	2	2	1	0	7
China	1	0	1	2	1	0	5
Ireland	1	0	0	1	2	0	4
Austria	0	0	0	2	1	0	3
Switzerland	0	0	1	1	1	0	3
Norway	0	1	0	1	1	0	3
Denmark	0	0	1	0	1	0	2
Patent Cooperation Treaty ...	0	1	0	0	1	0	2
New Zealand	0	0	0	0	2	0	2
Singapore	0	1	0	1	0	0	2
South Africa	0	0	1	1	0	0	2
Belgium	0	0	0	1	0	0	1
Brazil	0	0	0	1	0	0	1
Spain	0	0	0	1	0	0	1
Italy	0	0	0	1	0	0	1

NOTES: Patents in a family are linked together through "priority" details. Priority is established by the original patent application date in the first country where the application is filed. The European Patent Office (EPO) and the Patent Cooperation Treaty (PCT) represent two alternatives to filing multiple applications at individual patent country offices. For these two filing routes, an applicant makes an initial single filing at the responsible office (i.e., the European Patent Office for EPO applications and the World Intellectual Property Office (WIPO) for PCT applications). The applicant indicates the member countries in which it wishes to seek protection by listing the appropriate designated states on the application. In the past, applicants using these routes generally filed priority applications in their home country and then filed at the EPO and/or PCT. Increasingly, however, applicants are filing priority applications through these two venues, rather than through their home country. For this reason, the EPO or PCT shows as "priority country" in some tables.

SOURCE: *International Analysis of Human DNA Sequence Patenting*, submitted to the National Science Foundation by Mogee Research and Analysis Associates (Reston, VA, April 10, 2001).

Appendix table 6-18.

Internet-related business methods patents: Number of active assignees (not including individual inventors) by priority country and priority year: 1995–2000

Priority country	1995	1996	1997	1998	1999	2000
United States	34	49	99	150	196	1
Japan	11	39	50	55	45	4
Germany	2	2	3	8	10	2
Great Britain	1	2	7	8	8	1
Australia	2	2	4	7	10	0
South Korea	3	1	4	2	4	0
Canada	1	0	3	6	3	0
Finland	1	2	0	3	7	0
France	0	1	3	5	2	0
Sweden	0	1	6	2	2	0
Israel	0	0	2	6	2	0
Netherlands	1	1	2	2	2	1
European Patent Office	1	0	2	4	0	1
Singapore	0	3	0	1	0	0
Switzerland	0	0	1	1	1	0
Ireland	1	0	0	1	1	0
Belgium	0	0	0	2	0	0
Brazil	0	0	0	1	1	0
China	0	0	0	1	1	0
Denmark	0	0	1	0	1	0
Norway	0	1	0	1	0	0
New Zealand	0	0	0	0	2	0
Taiwan	0	0	0	1	1	0
South Africa	0	0	1	1	0	0
Patent Cooperation Treaty	0	1	0	0	0	0
Italy	0	0	0	1	0	0
Portugal	0	0	0	1	0	0
Russia	0	0	0	1	0	0

NOTES: Patents in a family are linked together through "priority" details. Priority is established by the original patent application date in the first country where the application is filed. Only companies, universities, nonprofit organizations, and government agencies are counted; individuals are not included. This table reflects the number of unique organizations that have filed patent applications, not the number of applications they have filed. Data for 1999 and 2000 are most likely incomplete because of the 18-month lag between the date a patent application is filed and the date it is published. The European Patent Office (EPO) and the Patent Cooperation Treaty (PCT) represent two alternatives to filing multiple applications at individual patent country offices. For these two filing routes, an applicant makes an initial single filing at the responsible office (i.e., the European Patent Office for EPO applications and the World Intellectual Property Office (WIPO) for PCT applications). The applicant indicates the member countries in which it wishes to seek protection by listing the appropriate designated states on the application. In the past, applicants using these routes generally filed priority applications in their home country and then filed at the EPO and/or PCT. Increasingly, however, applicants are filing priority applications through these two venues, rather than through their home country. For this reason, the EPO or PCT shows as "priority country" in some tables.

SOURCE: *International Analysis of Human DNA Sequence Patenting*, submitted to the National Science Foundation by Mogee Research and Analysis Associates (Reston, VA, April 10, 2001).

Appendix table 6-19.

U.S. venture capital disbursements, by industry category: 1980–2000

Industry	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Millions of U.S. dollars disbursed																					
All industries	703.3	1,559.4	1,901.9	3,650.7	5,292.8	3,768.9	4,685.7	4,888.2	5,602.9	5,834.5	3,868.9	2,874.9	5,229.4	5,236.0	5,187.8	5,945.5	9,897.4	13,558.3	16,777.6	52,178.0	90,551.1
Biotechnology	50.0	100.3	87.0	141.6	124.1	155.7	328.3	362.8	395.5	355.5	309.6	278.9	586.4	500.0	515.8	454.9	675.6	1,102.7	1,031.8	1,229.5	2,458.6
Communications	74.8	181.8	231.4	510.3	497.8	558.6	620.7	488.5	914.5	867.1	472.8	327.2	1,169.2	917.3	922.7	1,027.1	1,531.8	2,524.2	2,870.6	8,535.5	14,807.7
Computer hardware	155.1	369.2	652.9	1,186.9	1,057.9	777.9	838.1	687.4	586.4	536.7	335.3	261.3	279.4	166.1	259.7	364.7	393.9	491.9	553.8	1,031.6	2,091.3
Consumer related	50.0	167.9	104.7	268.9	1,757.5	272.8	521.9	829.3	815.1	901.4	443.3	394.0	378.9	677.4	790.9	744.0	1,123.2	1,154.0	1,194.3	1,532.1	1,944.7
Industrial and energy	148.6	290.8	248.1	281.1	328.3	476.7	325.1	380.2	362.0	447.3	243.9	183.8	182.0	179.6	216.3	368.9	389.6	455.3	395.9	550.6	821.9
Medical and health	49.0	105.6	118.1	283.4	332.4	355.3	395.6	553.0	613.6	1,009.8	597.1	375.1	879.8	658.4	921.1	957.8	1,277.2	2,034.7	2,287.9	2,765.6	3,327.2
Semiconductors and other electronics	85.0	175.5	221.9	354.7	471.4	480.9	510.6	498.4	453.8	358.5	297.6	217.6	243.2	171.5	265.8	344.1	532.1	742.1	871.1	2,080.3	5,661.1
Software and services	19.3	52.6	154.0	382.6	492.2	443.1	499.1	500.8	469.4	513.9	673.9	509.1	685.2	1,419.3	851.3	1,104.6	2,560.4	3,676.1	5,750.8	6,712.4	13,010.1
Other products and services	71.4	115.7	83.8	241.2	231.1	247.9	646.4	587.9	992.6	844.3	495.4	327.9	825.3	546.4	444.1	579.4	1,413.5	1,377.4	1,821.4	5,980.7	5,535.0
Internet specific	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percentage of total venture capital disbursements																					
All industries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Biotechnology	7.1	6.4	4.6	3.9	2.3	4.1	7.0	7.4	7.1	6.1	8.0	9.7	11.2	9.5	9.9	7.7	6.8	8.1	6.1	2.4	2.7
Communications	10.6	11.7	12.2	14.0	9.4	14.8	13.2	10.0	16.3	14.9	12.2	11.4	22.4	17.5	17.8	17.3	15.5	18.6	17.1	16.4	16.6
Computer hardware	22.1	23.7	34.3	32.5	20.0	20.6	17.9	14.1	10.5	9.2	8.7	9.1	5.3	3.2	5.0	6.1	4.0	3.6	3.3	2.0	2.4
Consumer related	7.1	10.8	5.5	7.4	33.2	7.2	11.1	17.0	14.5	15.4	11.5	13.7	7.2	12.9	15.2	12.5	11.3	8.5	7.1	2.9	2.1
Industrial and energy	21.1	18.6	13.0	7.7	6.2	12.6	6.9	7.8	6.5	7.7	6.3	6.4	3.5	3.4	4.2	6.2	3.9	3.4	2.4	1.1	0.9
Medical and health	7.0	6.8	6.2	7.8	6.3	9.4	8.4	11.3	11.0	17.3	15.4	13.0	16.8	12.6	17.8	16.1	12.9	15.0	13.6	5.3	3.7
Semiconductors and other electronics ...	12.1	11.3	11.7	9.7	8.9	12.8	10.9	10.2	8.1	6.1	7.7	7.6	4.7	3.3	5.1	5.8	5.4	5.5	5.2	4.0	6.2
Software and services	2.7	3.4	8.1	10.5	9.3	11.8	10.7	10.2	8.4	8.8	17.4	17.7	13.1	27.1	16.4	18.6	25.9	27.1	34.3	12.9	14.3
Other products and services	10.2	7.4	4.4	6.6	4.4	6.6	13.8	12.0	17.7	14.5	12.8	11.4	15.8	10.4	8.6	9.7	14.3	10.2	10.9	11.5	6.0
Internet specific	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	41.7	45.2

NA = not available

SOURCE: Special tabulations provided by Venture Economics (Newark, NJ, March 2001).

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Appendix table 6-20.

U.S. venture capital disbursements, by stage of financing: 1980–2000

Stage	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Millions of U.S. dollars disbursed																						
Total disbursements.....	703.3	1,559.4	1,901.9	3,650.7	5,292.8	3,768.9	4,685.7	4,888.2	5,602.9	5,834.5	3,868.9	2,874.9	5,229.4	5,236.0	5,187.8	5,945.5	9,897.4	13,558.3	16,777.6	52,177.9	90,551.1	
Subtotal, early-stage ^a	336.2	666.8	714.1	1,396.0	1,446.4	1,080.4	1,491.2	1,415.8	1,469.7	1,416.2	1,147.7	825.8	1,185.9	2,100.0	1,581.4	2,143.1	2,658.4	3,372.6	4,700.2	10,995.0	20,260.0	
Seed	11.0	47.7	63.1	111.4	129.7	103.9	117.6	122.0	144.4	184.8	124.6	88.0	158.2	314.2	236.7	312.5	376.8	629.3	717.1	710.7	1,282.8	
Startup	159.2	296.5	293.5	443.7	558.2	435.8	746.2	529.9	543.7	441.6	293.8	171.3	448.1	412.6	641.1	901.6	732.8	525.0	974.5	8,045.3	15,700.0	
Other early-stage	166.0	342.6	357.4	840.9	758.5	540.7	627.3	763.9	781.5	789.8	729.3	566.5	579.7	1,373.2	703.7	928.9	1,548.8	2,218.3	3,008.6	2,240.3	3,277.3	
Subtotal, later-stage ^b	367.0	872.6	1,187.8	2,254.8	3,846.4	2,688.5	3,194.6	3,472.4	4,133.2	4,418.3	2,721.2	2,049.1	4,043.5	3,136.0	3,606.4	3,802.5	7,239.0	10,185.7	12,077.4	41,182.9	70,291.1	
Expansion	251.2	540.1	915.6	1,667.5	1,776.6	1,939.8	1,911.1	2,168.6	2,228.5	2,316.9	1,942.6	1,536.4	2,959.3	2,366.4	2,226.7	2,836.6	4,973.4	7,486.9	9,340.2	27,419.4	55,226.3	
Acquisition	8.4	12.8	23.4	38.4	38.4	106.7	171.1	266.5	459.6	405.4	246.8	105.0	532.0	216.5	151.4	317.0	486.4	520.8	918.4	1,121.1	567.2	
Leveraged buyout	61.0	249.3	75.9	361.4	1,780.0	389.7	746.0	452.2	1,023.5	1,388.7	152.8	58.5	153.5	223.5	545.9	218.9	621.6	984.8	586.9	2,622.8	2,694.2	
Other later-stage	46.4	70.4	172.9	187.4	251.4	252.4	366.3	585.1	421.6	307.2	379.1	349.3	398.7	329.6	682.4	429.9	1,157.5	1,193.2	1,231.9	9,494.5	7,982.7	
Later stage, unknown	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	526.0	3,820.6
Percentage of total venture capital disbursements																						
Total disbursements.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Subtotal, early stage ^a	47.8	44.0	37.5	38.2	27.3	28.7	31.8	29.0	26.2	24.3	29.7	28.7	22.7	40.1	30.5	36.0	26.9	24.9	28.0	21.1	22.4	
Seed	1.6	3.1	3.3	3.1	2.5	2.8	2.5	2.5	2.6	3.2	3.2	3.1	3.0	6.0	4.6	5.3	3.8	4.6	4.3	1.4	1.4	
Startup	22.6	19.0	15.4	12.2	10.5	11.6	15.9	10.8	9.7	7.6	7.6	6.0	8.6	7.9	12.4	15.2	7.4	3.9	5.8	15.4	17.3	
Other early-stage	23.6	22.0	18.8	23.0	14.3	14.3	13.4	15.6	13.9	13.5	18.8	19.7	11.1	26.2	13.6	15.6	15.6	16.4	17.9	4.3	3.6	
Subtotal, later-stage ^b	52.2	56.0	62.5	61.8	72.7	71.3	68.2	71.0	73.8	75.7	70.3	71.3	77.3	59.9	69.5	64.0	73.1	75.1	72.0	78.9	77.6	
Expansion	35.7	34.6	48.1	45.7	33.6	51.5	40.8	44.4	39.8	39.7	50.2	53.4	56.6	45.2	42.9	47.7	50.2	55.2	55.7	52.5	61.0	
Acquisition	1.2	0.8	1.2	1.1	0.7	2.8	3.7	5.5	8.2	6.9	6.4	3.7	10.2	4.1	2.9	5.3	4.9	3.8	5.5	2.1	0.6	
Leveraged buyout	8.7	16.0	4.0	9.9	33.6	10.3	15.9	9.3	18.3	23.8	3.9	2.0	2.9	4.3	10.5	3.7	6.3	7.3	3.5	5.0	3.0	
Other later-stage	6.6	4.5	9.1	5.1	4.7	6.7	7.8	12.0	7.5	5.3	9.8	12.1	7.6	6.3	13.2	7.2	11.7	8.8	7.3	18.2	8.8	
Later stage, unknown	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0	4.2

NA = not available

^aEarly-stage disbursements include seed, startup, and other early-stage disbursements.^bLater-stage disbursements include expansion, acquisition, leveraged buyout, later-stage unknown, and other later-stage disbursements (bridge, special situation, turnaround, secondary purchase, and public market disbursements).

SOURCE: Special tabulations provided by Venture Economics (Newark, NJ, March 2001).

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Appendix table 6-21.

U.S. venture capital disbursements as seed money, by industry category: 1980–2000

Industry	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Millions of U.S. dollars disbursed																					
All industries	11.0	47.7	63.1	111.4	129.7	103.9	117.6	122.0	144.4	184.8	124.6	88.0	158.2	314.2	236.7	312.5	376.8	629.3	717.1	710.7	1282.8
Biotechnology	1.1	2.3	1.6	5.3	10.4	6.2	13.7	15.6	26.0	53.2	7.5	6.8	49.9	44.8	46.7	9.4	42.5	68.1	85.6	44.4	11.7
Communications	1.5	5.5	13.2	17.9	18.0	3.5	9.5	11.2	15.2	18.9	14.1	3.1	22.9	86.7	26.4	25.6	26.0	96.6	152.6	35.5	335.5
Computer hardware	6.0	15.1	17.3	14.3	30.1	10.9	2.3	16.8	14.1	14.4	14.5	14.6	3.7	17.0	6.2	39.2	14.6	15.1	21.3	13.6	27.4
Consumer related	0.0	0.0	1.1	1.2	0.7	3.0	16.0	15.7	6.5	14.4	13.3	1.2	9.5	16.4	45.8	40.2	6.5	40.5	16.8	9.7	9.9
Industrial/energy	0.4	5.0	5.1	4.1	2.0	16.8	7.2	5.6	18.3	9.2	1.0	0.0	4.0	25.8	26.7	3.7	10.3	6.3	2.3	NA	NA
Medical/health	0.5	8.0	3.9	17.1	15.3	17.4	38.7	26.6	33.0	37.3	31.5	33.6	38.1	55.1	43.6	87.7	79.8	124.9	143.9	48.8	37.6
Semiconductors/other electronics	0.0	10.3	10.4	15.6	20.4	14.3	15.9	15.1	11.3	8.0	12.2	1.5	4.3	10.5	10.6	23.0	40.6	26.7	30.2	22.0	67.1
Software and services	1.5	1.2	9.5	31.8	26.6	17.5	6.0	12.4	16.3	20.9	29.5	17.8	23.9	47.2	29.6	73.2	151.0	222.9	229.9	80.1	135.1
Other products/services	0.0	0.2	1.0	4.0	6.2	14.2	8.4	3.0	3.7	8.5	1.0	9.3	1.7	10.7	1.0	10.6	5.6	28.3	34.5	24.2	97.6
Internet specific	NA	432.4	560.8																		
Percentage of total venture capital disbursements																					
All industries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Biotechnology	10.0	4.9	2.5	4.8	8.0	5.9	11.7	12.8	18.0	28.8	6.0	7.7	31.5	14.3	19.7	3.0	11.3	10.8	11.9	6.3	0.9
Communications.....	13.6	11.6	20.8	16.1	13.9	3.4	8.1	9.2	10.5	10.2	11.3	3.6	14.5	27.6	11.2	8.2	6.9	15.3	21.3	5.0	26.2
Computer hardware	53.9	31.7	27.4	12.8	23.2	10.5	2.0	13.7	9.8	7.8	11.6	16.6	2.4	5.4	2.6	12.5	3.9	2.4	3.0	1.9	2.1
Consumer related	0.0	0.0	1.8	1.1	0.5	2.9	13.6	12.9	4.5	7.8	10.7	1.3	6.0	5.2	19.4	12.9	1.7	6.4	2.3	1.4	0.8
Industrial/energy	3.9	10.6	8.1	3.7	1.6	16.2	6.1	4.6	12.6	5.0	0.8	0.0	2.5	8.2	11.3	1.2	2.7	1.0	0.3	NA	NA
Medical/health	5.0	16.8	6.2	15.4	11.8	16.8	32.9	21.8	22.9	20.2	25.3	38.2	24.1	17.5	18.4	28.1	21.2	19.8	20.1	6.9	2.9
Semiconductors/other electronics	0.0	21.6	16.5	14.0	15.7	13.7	13.5	12.4	7.8	4.3	9.8	1.7	2.7	3.4	4.5	7.3	10.8	4.2	4.2	3.1	5.2
Software and services	13.6	2.4	15.1	28.5	20.5	16.9	5.1	10.1	11.3	11.3	23.7	20.3	15.1	15.0	12.5	23.4	40.1	35.4	32.1	11.3	10.5
Other products/services	0.0	0.4	1.6	3.6	4.8	13.6	7.2	2.5	2.5	4.6	0.8	10.6	1.1	3.4	0.4	3.4	1.5	4.5	4.8	3.4	7.6
Internet specific	NA	60.8	43.7																		

NA = not available

SOURCE: Special tabulations provided by Venture Economics (Newark, NJ, March 2001).

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Appendix table 7-1.
Level of public interest in selected policy issues: 1979–2001
(Percentages)

Issue	1979			1981			1983			1985			1988			1990			1992			1995			1997			1999					
	VI	MI	NI																														
New medical discoveries	—	—	—	—	—	—	68	29	3	72	25	3	68	29	3	66	31	3	69	27	4	70	26	4	68	28	4	65	32	4			
Local schools	38	37	25	46	36	18	46	36	18	47	39	13	51	33	15	50	34	16	53	35	12	57	31	13	58	30	11	54	34	12	59	31	10
Environmental pollution	—	—	—	—	—	—	—	—	—	—	—	—	64	31	5	59	36	5	53	41	6	52	40	8	51	41	8	48	43	8			
New scientific discoveries	36	49	14	37	45	17	48	40	11	44	44	12	43	46	12	39	48	12	36	49	15	44	45	11	49	42	8	45	43	11	47	45	9
Economy and business conditions	35	48	17	52	37	10	57	33	10	48	41	11	48	42	10	50	40	10	56	36	8	47	42	11	47	42	11	42	45	13	45	45	10
New inventions and technologies	33	51	15	33	50	16	42	45	12	39	49	12	40	48	12	39	49	12	37	53	10	43	46	11	47	43	10	41	48	10	43	47	10
Military and defense policy	—	—	—	—	—	—	43	42	15	47	42	11	47	42	11	55	35	10	47	43	10	37	46	17	35	48	17	42	44	14	38	44	18
Agriculture and farming	23	49	28	24	47	28	—	—	—	30	48	22	40	45	15	24	48	28	—	—	—	21	53	26	24	50	26	22	50	28	29	46	25
International and foreign policy	22	53	24	35	47	18	30	47	22	33	51	16	33	50	16	48	40	12	38	47	15	21	53	26	22	50	28	30	47	23	28	49	23
Space exploration	—	—	—	25	44	31	27	45	28	29	46	25	34	44	22	26	48	26	22	50	28	25	49	26	32	45	22	28	46	25	26	47	27
Sample size (number)	1,635			3,195			1,631			2,005			2,041			2,033			2,001			2,006			2,000			1,882			1,574		

— = not asked; VI = very interested; MI = moderately interested; NI = not interested

NOTES: Respondents were read the following statement: "There are a lot of issues in the news, and it is hard to keep up with every area. I'm going to read you a short list of issues, and for each one—as I read it—I would like you to tell me if you are very interested, moderately interested, or not at all interested." "Don't know" responses are not included. Percentages may not add to 100 because of rounding.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

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Appendix table 7-2.
Level of public interest in selected policy issues: 1979–2001
 (Mean index scores)

Issue	1979	1981	1983	1985	1988	1990	1992	1995	1997	1999	2001
New medical discoveries	—	—	—	83	85	83	82	83	83	82	80
Local schools	57	64	64	67	68	67	71	72	73	71	74
Environmental pollution	—	—	—	—	—	80	77	74	72	71	70
New scientific discoveries	61	60	68	66	66	63	61	67	70	67	69
Economy and business conditions	59	71	74	69	69	70	74	68	68	65	67
New inventions and technologies	59	58	65	64	64	64	64	66	69	65	66
Military and defense policy	—	—	64	68	70	73	68	60	59	64	60
International and foreign policy	49	59	54	59	58	68	62	48	47	53	53
Agriculture and farming	48	48	—	54	63	48	—	47	49	47	52
Space exploration	—	47	50	52	56	50	47	50	55	51	50
Sample size (number)	1,635	3,195	1,631	2,005	2,041	2,033	2,001	2,006	2,000	1,882	1,574

— = not asked

NOTES: Respondents were read the following statement: "There are a lot of issues in the news, and it is hard to keep up with every area. I'm going to read you a short list of issues, and for each one—as I read it—I would like you to tell me if you are very interested, moderately interested, or not at all interested." Responses were converted to a 0–100 scale by assigning a value of 100 for a "very interested" response, 50 for "moderately interested," and 0 for "not at all interested." Indices were obtained by adding all the values for each policy issue and computing the average.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

See figure 7-1 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 7-3.

Level of public interest in selected policy issues, by sex and level of education: 2001
(Mean index scores)

Sex and level of education	New medical discoveries	Local school issues	Environmental pollution	Issues about new scientific discoveries	Economic issues and business conditions	Use of new inventions and technologies	Military and defense policy	International and foreign policy issues	Agricultural and farm issues	Space exploration	Sample size (number)
All adults	80	74	70	69	67	66	60	53	52	50	1,574
Male	75	69	69	72	71	71	66	58	54	57	751
Female	86	79	71	67	64	62	55	48	51	43	823
Formal education											
Less than high school	73	77	67	57	53	54	56	39	52	39	116
High school graduate.....	82	74	70	70	69	67	62	53	53	50	834
Baccalaureate degree	81	74	71	75	74	72	60	62	49	57	393
Graduate/professional degree	82	72	75	78	75	74	60	68	49	56	221
Science/mathematics education level^a											
Low	80	75	71	65	65	62	62	48	56	44	674
Middle	81	75	66	71	70	68	58	56	47	52	469
High.....	81	71	73	78	70	75	60	61	49	61	431

^aRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/mathematics courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

NOTES: Respondents were read the following statement: “There are a lot of issues in the news, and it is hard to keep up with every area. I’m going to read you a short list of issues, and for each one—as I read it—I would like you to tell me if you are very interested, moderately interested, or not at all interested.” Responses were converted to a 0–100 scale by assigning value of 100 for a “very interested” response, 50 for “moderately interested,” and 0 for “not at all interested.” Indices were obtained by adding all values for each policy issue and computing the average.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See figure 7-2 in Volume 1.

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Appendix table 7-4.
Feeling informed about selected policy issues: 1979–2001 (selected years)
(Percentages)

Issue	1979			1981			1983			1985			1988			1990			1992			1995			1997			1999					
	VI	MI	NI																														
Local school issues	20	48	32	32	45	22	34	41	25	30	47	22	33	44	23	32	46	21	32	46	22	36	46	18	38	44	17	35	47	18			
Economic issues and business conditions	14	55	31	29	51	20	28	52	20	22	51	26	22	55	22	25	55	20	29	54	17	25	53	22	25	53	24	23	56	22			
New medical discoveries	—	—	—	—	—	—	—	—	—	24	57	18	22	59	19	24	57	20	22	58	21	23	57	20	28	56	16	25	56	19	21	59	20
Environmental pollution	—	—	—	—	—	—	—	—	—	—	—	—	32	55	13	29	56	15	24	56	20	23	55	21	21	54	25	18	58	24			
Military and defense policy	—	—	—	—	—	—	21	50	29	21	48	31	17	51	32	26	51	23	24	51	25	17	47	36	18	42	40	21	46	33	15	48	37
Issues about new scientific discoveries	10	52	37	13	49	38	13	53	34	13	59	27	14	55	31	14	55	31	12	54	34	13	58	29	19	58	23	17	56	28	14	57	29
Agricultural and farm issues ...	10	44	45	14	42	44	—	—	—	17	47	35	20	52	27	13	46	42	—	—	—	11	47	42	13	49	38	11	43	45	14	44	43
The use of new inventions and technologies	10	50	39	11	48	40	14	55	32	12	54	34	12	51	36	11	53	35	10	56	33	12	55	33	16	56	28	17	53	30	12	52	36
International and foreign policy issues	8	54	37	17	54	28	14	51	35	15	53	32	14	55	31	22	57	22	19	54	26	10	52	37	10	52	38	14	52	34	12	46	43
Space exploration	—	—	—	14	46	40	13	52	34	16	52	32	13	52	34	11	51	38	9	48	44	9	48	43	16	50	34	13	48	40	10	45	46
Sample size (number)	1,635			3,195			1,631			2,005			2,041			2,033			2,001			2,006			2,000			1,882			1,574		

VI = very well informed; MI = moderately well informed; NI = poorly informed; — = not asked

NOTES: Percentages may not add to 100 because of rounding. "Don't know" responses are not included. Responses are to the following statement: Now I'd like to go through this list with you again, and for each issue I'd like you to tell me if you are very well informed, moderately well informed, or poorly informed.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Science & Engineering Indicators – 2002

Appendix table 7-5.
Feeling informed about selected policy issues: 1979–2001
 (Mean index scores)

Issue	1979	1981	1983	1985	1988	1990	1992	1995	1997	1999	2001
Local school issues.....	44	55	54	54	55	55	55	59	61	58	59
Economic issues and business conditions	42	55	54	48	50	53	56	52	51	50	51
New medical discoveries	—	—	—	53	52	53	51	52	56	53	51
Environmental pollution	—	—	—	—	—	60	57	52	51	48	47
Issues about new scientific discoveries	36	38	40	43	42	42	39	42	48	44	42
Military and defense policy	—	—	46	45	43	51	49	40	39	44	39
The use of new inventions and technologies	35	35	42	39	38	38	38	40	44	43	38
Agricultural and farm issues	33	35	—	41	46	36	—	35	38	33	35
International and foreign policy issues	35	44	40	42	42	51	46	36	36	40	35
Space exploration	—	37	39	42	39	37	33	33	41	37	32
Sample size (number)	1,635	3,195	1,631	2,005	2,041	2,033	2,001	2,006	2,000	1,882	1,574

— = not asked

NOTES: Respondents were read the following statement: "Now, I'd like to go through this list with you again, and for each issue I'd like you to tell me if you are very well informed, moderately well informed, or poorly informed." Responses were converted to a 0–100 scale by assigning a value of 100 for a "very well informed" response, 50 for "moderately well informed," and 0 for "poorly informed." Indices were obtained by adding all the values for each policy issue and computing the average.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

See figure 7-1 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 7-6.
Feeling informed about selected policy issues, by sex and level of education: 2001
 (Mean index scores)

Sex and level of education	Local school issues	New medical discoveries	Economic issues and business conditions	Environmental pollution	Issues about new scientific discoveries	Military and defense policy	Use of new inventions and technologies	Agricultural and farming issues	International and foreign policy issues	Space exploration	Sample size (number)
All adults	59	51	51	47	42	39	38	35	35	32	1,574
Male	54	47	55	46	44	44	40	36	38	39	751
Female	64	54	46	48	40	34	37	35	31	26	823
Formal education											
Less than high school	57	45	38	45	33	32	31	38	30	26	116
High school graduate	60	52	51	47	41	40	38	37	33	32	834
Baccalaureate degree	59	50	59	48	49	40	43	29	40	37	393
Graduate/professional degree	61	54	58	53	57	39	49	28	48	38	221
Science/mathematics education^a											
Low	59	50	46	46	37	36	34	39	31	29	674
Middle	61	51	55	48	45	42	40	33	37	31	469
High	58	52	56	49	52	41	47	30	40	41	431

^aRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/mathematics courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

NOTES: Respondents were read the following statement: “Now, I’d like to go through this list with you again, and for each issue I’d like you to tell me if you are very well informed, moderately well informed, or poorly informed.” Responses were converted to a 0–100 scale by assigning a value of 100 for a “very well informed” response, 50 for “moderately well informed,” and 0 for “poorly informed.” Indices were obtained by adding all the values for each policy issue and computing the average.

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See figure 7-2 in Volume 1.

Science & Engineering Indicators – 2002

Appendix table 7-7.
Public attentiveness to selected policy issues: 1979–2001
(Percentages)

Issue	1979			1981			1983			1985			1988			1990			1992			1995			1997			1999					
	AP	IP	RP																														
Local schools	17	21	62	27	19	54	27	20	54	26	22	52	31	20	49	28	23	49	26	25	49	32	25	43	33	25	42	29	25	46	31	28	41
International and foreign policy issues	6	16	78	6	29	65	8	23	70	8	25	67	8	25	67	14	34	52	11	27	62	5	16	79	5	18	77	7	23	70	5	23	72
Issues about new scientific discoveries	7	29	64	9	28	63	9	40	52	8	36	56	8	34	57	8	31	61	7	29	64	7	37	56	11	38	51	8	37	55	7	39	53
The use of new inventions and technologies	6	27	67	8	26	67	8	34	58	8	31	61	7	33	60	7	32	61	6	30	63	6	37	57	9	38	53	7	34	59	6	36	58
Science and technology ^a	9	37	54	12	35	54	13	48	39	12	44	45	11	42	46	11	40	49	10	40	50	10	47	43	14	46	40	12	44	44	10	48	42
Space exploration	—	—	—	7	18	75	7	20	73	9	20	71	8	26	66	6	20	74	5	17	78	5	20	75	8	24	68	6	22	72	5	21	74
New medical discoveries	—	—	—	—	—	—	—	—	—	17	51	32	16	56	28	16	52	32	17	49	34	16	53	31	19	52	29	16	52	32	14	51	35
Environmental pollution	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	43	36	18	41	41	12	40	48	12	40	48	10	41	49	10	38	52
Economic issues and business conditions	9	26	65	12	40	48	19	38	43	16	32	52	15	33	52	17	34	50	19	38	44	15	32	53	14	32	54	12	30	58	12	33	55
Agriculture	5	18	77	3	21	76	—	—	—	9	21	70	9	31	60	6	18	76	—	—	—	5	16	79	5	18	77	6	16	78	6	23	71
Military and defense	—	—	—	—	—	—	14	29	57	13	34	53	16	56	28	16	39	45	16	31	53	8	29	63	9	26	65	10	32	58	7	31	62
Sample size (number)	1,635			3,195			1,631			2,005			2,041			2,033			2,001			2,006			2,000			1,882			1,574		

AP = attentive public; IP = interested public; RP = residual public; — = not asked

^aThe attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. To be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it and is a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue area. Responses are to the following statements:

—There are a lot of issues in the news, and it is hard to keep up with every area. I'm going to read to you a short list of issues, and for each one—as I read it—I would like you to tell me if you are interested, moderately interested, or not at all interested.

—Now I'd like to go through this list with you again, and for each issue I'd like you to tell me if you are very well informed, moderately well informed, or poorly informed.

—Now let me change the topic slightly and ask you how you get information. First, how often do you read a newspaper: every day, a few times a week, once a week, or less than once a week? Is there any magazine that you read regularly, that is, most of the time? What magazine would that be? Is there another magazine that you read regularly? What magazine would that be?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

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Appendix table 7-8.
Public attentiveness to science and technology issues, by sex and level of education: 2001
(Percentages)

Sex and level of education	New scientific discoveries		New inventions and technologies		Science and technology ^a		New medical discoveries		Space exploration		Environmental pollution		Sample size (number)
	AP	IP	AP	IP	AP	IP	AP	IP	AP	IP	AP	IP	
All adults	7	39	6	36	10	48	14	51	5	21	10	38	1,574
Male	10	41	9	41	13	50	11	44	8	28	11	36	751
Female	5	37	4	31	8	46	17	57	2	14	10	40	823
Formal education													
Less than high school	3	34	2	29	3	40	7	52	0	24	6	39	116
High school graduate	6	40	6	36	10	50	15	51	6	19	10	38	834
Baccalaureate degree	11	41	8	39	13	49	14	50	7	25	11	36	393
Graduate/professional degree	18	41	11	41	23	44	20	48	8	18	17	38	221
Science/mathematics education^b													
Low	5	36	4	33	7	45	12	52	2	20	9	41	674
Middle	8	42	8	39	12	51	15	49	6	20	12	32	469
High	15	42	10	41	18	50	17	48	11	26	13	38	431

AP = attentive public; IP = interested public

^aThe attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of these issues but who is a member of the interested public for at least one of these issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

^bRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

NOTES: To be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, that he or she is "very well informed" about it, and that he or she is a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. A few respondents did not provide information about their highest level of education. Responses are to the following statements:

-There are a lot of issues in the news, and it is hard to keep up with every area. I'm going to read you a short list of issues, and for each one—as I read it—I would like you to tell me if you are interested, moderately interested, or not at all interested.

-Now, I'd like to go through this list with you again, and for each issue, I'd like you to tell me if you are very well informed, moderately well informed, or poorly informed.

-How often do you read a newspaper: every day, a few times a week, once a week, or less than once a week? Is there any magazine that you read regularly, that is, most of the time? What magazine would that be? Is there another magazine that you read regularly? What magazine would that be?"

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See figure 7-3 in Volume 1.

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Appendix table 7-9.

Correct answers to scientific terms and concept questions: 1995–2001

(Aggregated percentages)

Characteristic	1995	1997	1999	2001
All adults	63	61	62	64
Male	69	67	67	70
Female	58	56	58	59
Formal education				
Less than high school	45	48	48	50
High school graduate	60	61	62	63
Baccalaureate	72	73	75	77
Graduate/professional	81	79	80	80
Science/mathematics education^a				
Low	53	53	54	56
Middle	67	65	68	68
High	78	79	79	81
Attentiveness to science or technology^b				
Attentive public	74	71	72	73
Interested public	65	64	65	67
Residual public	56	54	56	59

^aRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/mathematics courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and is a regular reader of a daily newspaper or relevant national magazine. Individuals who report they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue area. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of these issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: This measure includes responses to the following true/false questions:

- All radioactivity is man-made. (False)
- Electrons are smaller than atoms. (True)
- The continents on which we live have been moving their location for millions of years and will continue to move in the future. (True)
- The earliest humans lived at the same time as the dinosaurs. (False)
- The center of the Earth is hot. (True)
- The oxygen we breathe comes from plants. (True)
- It is the father's gene that decides whether the baby is a boy or a girl. (True)
- Lasers work by focusing sound waves. (False)
- Antibiotics kill viruses as well as bacteria. (False)
- The universe began with a huge explosion. (True)
- Human beings, as we know them today, developed from earlier species of animals. (True)
- Cigarette smoking causes lung cancer. (True)
- Radioactive milk can be made safe by boiling it. (False)

The following short-answer items were also included:

- Which travels faster: light or sound? (Light)
- Does the Earth go around the Sun, or does the Sun go around the Earth? (Earth around the Sun)
- How long does it take for the Earth to go around the Sun: one day, one month, or one year? (One year)

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-10.
Correct answers to specific science literacy questions: 2001
(Percentages)

Characteristic	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	Sample size (number)
All adults	80	76	87	65	45	48	51	33	79	53	94	48	65	76	75	54	45	22	1,574
Male	85	81	92	58	61	52	46	43	83	57	94	50	70	89	86	66	47	28	751
Female	76	71	82	72	30	43	55	24	74	50	93	45	60	65	66	42	44	15	823
Formal education																			
Less than high school	71	61	79	45	32	29	25	20	62	45	95	36	52	61	52	31	28	27	116
High school graduate	79	75	88	66	41	45	49	32	79	49	92	46	63	78	76	51	38	17	834
Baccalaureate	90	92	88	77	65	66	73	44	89	67	96	58	78	85	92	77	69	28	393
Graduate/professional	92	86	89	76	65	70	76	59	90	81	95	67	80	82	92	76	68	37	221
Science/mathematics education^a																			
Low	73	67	55	59	33	33	39	25	72	46	92	40	60	71	65	39	28	10	674
Middle	86	80	58	69	49	56	57	38	82	56	95	53	64	79	92	61	54	23	469
High	92	92	91	77	71	77	76	50	91	69	96	62	80	89	94	83	70	37	431
Attentiveness to science or technology^b																			
Attentive public	88	80	89	68	58	57	56	50	90	72	93	61	78	82	83	66	50	28	195
Interested public	83	79	88	67	47	51	57	39	81	53	94	48	65	80	81	58	48	22	755
Residual public	76	71	84	62	39	42	43	24	73	49	93	44	62	71	68	46	41	19	624

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/mathematics courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and is a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of these issues but is a member of the interested public for at least one of these issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Responses are correct for the following statements:

A = The center of the Earth is very hot. (True)

B = All radioactivity is man-made. (False)

C = The oxygen we breathe comes from plants. (True)

D = It is the father's gene which decides whether the baby is a boy or a girl. (True)

E = Lasers work by focusing sound waves. (False)

F = Electrons are smaller than atoms. (True)

G = Antibiotics kill viruses as well as bacteria. (False)

H = The universe began with a huge explosion. (True)

I = The continents on which we live have been moving their location for millions of years and will continue to move in the future. (True)

J = Human beings, as we know them today, developed from earlier species of animals. (True)

K = Cigarette smoking causes lung cancer. (True)

L = The earliest humans lived at the same time as the dinosaurs. (False)

M = Radioactive milk can be made safe by boiling it. (False)

N = Which travels faster: light or sound? (Light)

O = Does the Earth go around the Sun, or does the Sun go around the Earth? (Earth around the Sun)

P = How long does it take for the Earth to go around the Sun: one day, one month, or one year? (One year)

Appendix table 7-10.

Correct answers to specific science literacy questions: 2001
(Percentages)

Q = Please tell me in your own words, what is DNA?

R = Please tell me in your own words, what is a molecule?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See Figure 7-4 in volume 1.

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Appendix table 7-11.
Public understanding of the nature of scientific inquiry: 2001

Characteristic	Inquiry	Scientific study	Experiment	Probability
All adults	30	33	43	57
Male	30	33	44	58
Female	29	33	43	56
Formal education				
Less than high school	10	24	26	32
High school graduate	28	26	41	59
Baccalaureate	45	52	58	70
Graduate/professional	54	59	67	76
Science/mathematics education^a				
Low	17	19	29	47
Middle	38	39	54	63
High	53	55	64	77
Attentiveness to science and technology^b				
Attentive public	35	33	43	63
Interested public	32	34	45	58
Residual public	26	32	41	55

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and is a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of these issues but who is a member of the interested public for at least one of these issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology

NOTES: The level of understanding of the nature of scientific inquiry is estimated using a combination of each survey participant's responses to three questions. To be classified as understanding the nature of scientific inquiry, a respondent had to answer all the probability questions correctly and either provide a "theory-testing" response to the question about what it means to study something scientifically or provide a correct response to the open-ended questions about the experiment, i.e., explain why it was better to test a drug using a control group. Responses are to the following:

-When you read news stories, you see certain sets of words and terms. We are interested in how many people recognize certain kinds of terms, and I would like to ask you a few brief questions in that regard. First, some articles refer to the results of a scientific study. When you read or hear the term scientific study, do you have a clear understanding of what it means, a general sense of what it means, or little understanding of what it means?" If the response is "clear understanding" or "general sense": In your own words, could you tell me what it means to study something scientifically?

-Now, please think of this situation: Two scientists want to know if a certain drug is effective in treating high blood pressure. The first scientist wants to give the drug to 1,000 people with high blood pressure and see how many experience lower blood pressure levels. The second scientist wants to give the drug to 500 people with high blood pressure and not give the drug to another 500 people with high blood pressure and see how many in both groups experience lower blood pressure levels. Which is the better way to test this drug? Why is it better to test the drug this way?

-Now think about this situation: A doctor tells a couple that their "genetic makeup" means that they've got one in four chances of having a child with an inherited illness. Does this mean that if their first three children are healthy, the fourth will have the illness? Does this mean that if their first child has the illness, the next three will not? Does this mean that each of the couple's children will have the same risk of suffering from the illness? Does this mean that if they have only three children, none will have the illness?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See figure 7-5 in Volume 1.

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Appendix table 7-12.

**Attitudes toward science and technology items included in the Index of Scientific Promise and the Index of Scientific Reservation: 2001
(Percentages)**

Item	Strongly agree	Agree	Do not know	Disagree	Strongly disagree
Promise of science					
Science and technology are making our lives healthier, easier, and more comfortable.....	14	72	3	10	1
Most scientists want to work on things that will make life better for the average person.....	11	78	3	8	1
With the application of science and new technology, work will become more interesting.....	9	63	5	21	2
Because of science and technology, there will be more opportunities for the next generation.....	21	64	2	12	2
Reservations about science					
We depend too much on science and not enough on faith.....	11	40	4	41	5
It is not important for me to know about science in my daily life.....	2	14	1	61	22
Science makes our way of life change too fast.....	4	34	2	54	5
	B>>H	B>H	B=H	H>B	H>>B
Have the benefits of scientific research outweighed the harmful results or have the harmful results outweighed the benefits?	47	25	19	7	3

B>>H = benefits strongly outweigh harmful results; B>H = benefits outweigh harmful results; B=H = benefits equal harmful results; H>B = harmful results outweigh benefits; H>>B = harmful results strongly outweigh benefits

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

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Appendix table 7-13.
Results of Attitude Toward Organized Science Scale: 1983–2001

Items and characteristics	1983	1985	1988	1990	1992	1995	1997	1999	2001
	Percent								
	Mean ATOSS score								
Agree that “science and technology are making our lives healthier, easier, and more comfortable.”	84	86	87	84	85	86	89	90	86
Agree that “the benefits of science are greater than any harmful effects.”	57	68	76	72	73	72	75	75	72
Disagree that “science makes our way of life change too fast.”	50	53	59	60	63	60	61	57	59
Disagree that “we depend too much on science and not enough on faith.”	43	39	43	44	45	44	48	46	45
All adults	2.3	2.5	2.7	2.6	2.7	2.6	2.7	2.7	2.6
Male	2.2	2.4	2.6	2.5	2.7	2.7	2.9	2.8	2.7
Female	2.5	2.6	2.8	2.8	2.6	2.5	2.6	2.6	2.5
Formal education									
Less than high school	1.8	1.8	2.2	1.8	2.0	2.0	2.2	2.0	2.1
High school graduate	2.4	2.6	2.8	2.7	2.7	2.6	2.7	2.7	2.6
Baccalaureate	2.9	3.1	3.2	3.1	3.3	3.3	3.2	3.1	3.0
Graduate/professional	2.9	3.1	3.1	3.2	3.3	3.4	3.4	3.3	3.2
Science/mathematics education^a									
Low	NA	NA	NA	2.4	2.5	2.3	2.5	2.4	2.4
Middle	NA	NA	NA	2.9	2.7	2.9	2.9	2.8	2.8
High	NA	NA	NA	3.3	3.3	3.2	3.3	3.3	3.1
Attentiveness to science or technology^b									
Attentive public	2.6	2.8	3.0	2.8	2.9	3.1	3.0	3.0	2.9
Interested public	2.4	2.6	2.8	2.7	2.8	2.7	2.9	2.8	2.7
Residual public	2.1	2.3	2.5	2.5	2.5	2.4	2.4	2.4	2.4
Sample size (number)	1,631	2,005	2,041	2,033	3,977	2,006	2,000	1,882	1,574

ATOSS = Attitude Toward Organized Science Scale; NA = not available

^aRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue area, report that he or she is “very well informed” about it, and be a regular reader of a daily newspaper or relevant national magazine. Citizens who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue area. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Responses are to the following statement: “Now I would like to read you some statements like those you might find in a newspaper or magazine article. For each statement, please tell me if you generally agree or disagree. If you feel especially strongly about a statement, please tell me that you strongly agree or strongly disagree.” The scale is a count of agreement with the first two items and disagreement with the last two items. ATOSS scores for each respondent range from 0 to 4, with a score of 4 representing agreement with the first two items and disagreement with the last two, and a score of 0 representing disagreement with the first two items and agreement with the last two.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-14.

Belief that people would do better by living a simpler life: 1997, 1999, and 2001

Characteristic	1997	1999	2001
	Percent		
All adults			
Strongly agree	6	7	7
Agree	37	39	37
Do not know	5	3	4
Disagree	48	48	48
Strongly disagree	4	3	5
Male			
Strongly agree	6	6	7
Agree	33	34	32
Do not know	4	4	2
Disagree	53	53	52
Strongly disagree	4	3	7
Female			
Strongly agree	7	6	6
Agree	41	45	41
Do not know	5	3	5
Disagree	44	44	44
Strongly disagree	3	2	4
Less than high school graduate			
Strongly agree	8	11	7
Agree	44	50	54
Do not know	7	5	5
Disagree	36	32	29
Strongly disagree	5	2	6
High school graduate			
Strongly agree	7	6	8
Agree	37	39	36
Do not know	4	3	3
Disagree	48	50	48
Strongly disagree	4	2	5
Baccalaureate and higher			
Strongly agree	3	2	4
Agree	29	27	25
Do not know	5	4	4
Disagree	59	61	60
Strongly disagree	4	6	6
Attentive public to science and technology^a			
Strongly agree	6	8	4
Agree	29	28	30
Do not know	3	3	6
Disagree	54	58	52
Strongly disagree	8	3	8
Sample size (number)			
All adults			
Male	2,000	1,882	1,574
Female	930	900	751
Less than high school graduate	1,070	982	823
High school graduate	420	403	116
Baccalaureate and higher	1,188	1,111	834
Attentive public to science and technology	392	368	614
	288	216	195

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and is a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following question: People would do better by living a simpler life without so much technology. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-15.

Belief that technological discoveries will destroy the Earth: 1997, 1999, and 2001

Characteristic	1997	1999	2001
	Percent		
All adults			
Strongly agree	4	4	4
Agree	22	27	25
Do not know	6	5	4
Disagree	56	55	56
Strongly disagree	12	9	11
Male			
Strongly agree	5	5	4
Agree	21	24	23
Do not know	6	4	3
Disagree	53	56	57
Strongly disagree	15	11	13
Female			
Strongly agree	4	4	4
Agree	23	29	26
Do not know	7	6	5
Disagree	57	53	55
Strongly disagree	9	7	9
Less than high school graduate			
Strongly agree	7	8	7
Agree	26	35	43
Do not know	7	6	5
Disagree	48	48	43
Strongly disagree	12	3	3
High school graduate			
Strongly agree	4	4	4
Agree	24	27	24
Do not know	7	5	4
Disagree	56	56	57
Strongly disagree	9	8	11
Baccalaureate and higher			
Strongly agree	2	2	1
Agree	14	18	13
Do not know	4	5	5
Disagree	61	57	63
Strongly disagree	19	18	18
Attentive public to science and technology^a			
Strongly agree	4	8	3
Agree	11	18	23
Do not know	6	3	3
Disagree	60	56	53
Strongly disagree	19	15	19
Sample size (number)			
All adults	2,000	1,882	1,574
Male	930	900	751
Female	1,070	982	823
Less than high school graduate	420	403	116
High school graduate	1,188	1,111	834
Baccalaureate and higher	392	368	614
Attentive public to science and technology	288	216	195

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and is a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following question: Technological discoveries will eventually destroy the Earth. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resource Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-16.

Public assessment that technological development creates an artificial and inhuman way of living: 1997, 1999, and 2001

Characteristic	1997	1999	2001
	Percentages		
All adults			
Strongly agree	2	2	3
Agree	27	29	27
Do not know	6	6	5
Disagree	58	58	57
Strongly disagree	7	5	8
Male			
Strongly agree	3	2	2
Agree	25	26	30
Do not know	4	5	4
Disagree	60	61	54
Strongly disagree	8	6	9
Female			
Strongly agree	2	3	3
Agree	29	31	25
Do not know	7	7	6
Disagree	56	56	60
Strongly disagree	6	4	6
Less than high school graduate			
Strongly agree	3	5	2
Agree	37	40	44
Do not know	9	13	8
Disagree	43	40	43
Strongly disagree	8	2	4
High school graduate			
Strongly agree	3	2	4
Agree	27	28	26
Do not know	6	5	6
Disagree	60	61	59
Strongly disagree	4	4	6
Baccalaureate and higher			
Strongly agree	1	1	1
Agree	16	18	18
Do not know	3	2	2
Disagree	68	66	64
Strongly disagree	12	13	15
Attentive public to science and technology^a			
Strongly agree	3	4	4
Agree	19	22	24
Do not know	1	2	2
Disagree	63	64	57
Strongly disagree	14	9	14
Sample size (number)			
All adults	2,000	1,882	1,574
Male	930	900	751
Female	1,070	982	823
Less than high school graduate	420	403	116
High school graduate	1,188	1,111	834
Baccalaureate or higher	392	368	614
Attentive public to science and technology	288	216	195

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and is a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue area. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following question: Technological development creates an artificial and inhuman way of living. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCES: National Science Foundation, Division of Science Resource Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-17.
General attitudes toward science and technology: 1999 and 2001
(Means)

Characteristic	1999			2001		
	P ^a	R ^b	P/R	P ^a	R ^b	P/R
All adults	66	45	1.46	60	47	1.30
Male	66	44	1.50	61	45	1.36
Female	64	48	1.35	57	48	1.18
Formal education						
Less than high school	63	51	1.23	57	54	1.06
High school graduate	65	46	1.40	60	47	1.28
Baccalaureate	68	39	1.74	63	40	1.55
Graduate/professional	69	38	1.80	65	39	1.65
Science/mathematics education^c						
Low	63	49	1.29	59	50	1.18
Middle	66	44	1.50	61	45	1.36
High	69	38	1.80	64	40	1.60
Attentiveness to science and technology^d						
Attentive public	69	40	1.72	65	41	1.58
Interested public	67	44	1.52	62	45	1.37
Residual public	62	49	1.26	58	49	1.17

P = promise of science and technology; R = reservations about science and technology; P/R = ratio of Promise Index to Reservation Index.

^aThe Index of Scientific Promise includes responses to the following statements:

I would like to read you some statements like those you might find in a newspaper or magazine article. For each statement, please tell me if you generally agree or disagree. If you feel especially strongly about a statement, please tell me that you strongly agree or disagree.

—Science and technology are making our lives healthier, easier, and more comfortable.

—Most scientists want to work on things that will make life better for the average person.

—With the application of science and new technology, work will become more interesting.

—Because of science and technology, there will be more opportunities for the next generation.

^bThe Index of Scientific Reservation includes responses to the following statements:

I would like to read you some statements like those you might find in a newspaper or magazine article. For each statement, please tell me if you generally agree or disagree. If you feel especially strongly about a statement, please tell me that you strongly agree or strongly disagree.

—We depend too much on science and not enough on faith.

—It is not important for me to know about science in my daily life.

—Science makes our way of life change too fast.

^cRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/mathematics courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

^dTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and is a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: The Index of Scientific Promise and the Index of Scientific Reservation are factor scores converted to a 0–100 scale. A factor analysis verified the existence of a two-factor structure. The lowest possible factor score (strong disagreement with all of the items) was set to 0, and the highest possible factor score (strong agreement with all of the items) was set to 100. All factor scores between the highest and the lowest were placed on the 0–100 scale accordingly.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-18.
Public assessment of general scientific research: 1979–2001

Characteristic	1979	1981	1985	1988	1990	1992	1995	1997	1999	2001
	Percent									
All adults										
Benefits strongly outweigh harmful results	46	42	44	57	47	42	43	47	47	47
Benefits slightly outweigh harmful results	24	28	24	25	25	31	29	28	27	25
Benefits equal harmful results	19	13	13	5	15	11	16	13	11	19
Harmful results slightly outweigh benefits	7	12	13	9	10	12	10	8	10	7
Harmful results strongly outweigh benefits	4	5	6	4	3	4	3	4	5	3
Male										
Benefits strongly outweigh harmful results	51	48	48	59	54	45	47	52	50	49
Benefits slightly outweigh harmful results	23	27	23	25	24	30	28	27	27	27
Benefits equal harmful results	16	11	10	5	9	9	13	10	9	15
Harmful results slightly outweigh benefits	7	10	13	7	9	11	9	7	10	7
Harmful results strongly outweigh benefits	3	5	6	4	4	5	4	4	4	2
Female										
Benefits strongly outweigh harmful results	42	37	40	55	40	40	39	42	45	44
Benefits slightly outweigh harmful results	25	28	26	25	26	31	30	29	28	23
Benefits equal harmful results	23	16	14	6	20	13	19	15	12	22
Harmful results slightly outweigh benefits	6	14	14	10	11	12	10	10	10	8
Harmful results strongly outweigh benefits	4	5	6	4	3	4	3	4	5	3
Less than high school graduate										
Benefits strongly outweigh harmful results	26	26	20	37	24	24	18	30	25	28
Benefits slightly outweigh harmful results	25	23	21	30	25	33	30	28	25	27
Benefits equal harmful results	32	25	26	9	30	17	34	21	18	26
Harmful results slightly outweigh benefits	12	18	20	17	17	20	14	18	22	13
Harmful results strongly outweigh benefits	5	9	13	7	4	7	3	3	10	6
High school graduate										
Benefits strongly outweigh harmful results	50	43	47	59	49	41	44	46	47	45
Benefits slightly outweigh harmful results	26	31	26	25	27	32	30	30	31	25
Benefits equal harmful results	16	10	10	5	11	10	13	13	10	20
Harmful results slightly outweigh benefits	5	12	13	7	10	12	10	6	8	8
Harmful results strongly outweigh benefits	3	4	4	4	3	5	3	5	4	2
Baccalaureate and higher										
Benefits strongly outweigh harmful results	69	64	67	80	72	66	67	67	71	64
Benefits slightly outweigh harmful results	18	22	23	16	18	22	23	23	19	23
Benefits equal harmful results	8	7	2	1	6	8	6	6	5	9
Harmful results slightly outweigh benefits	2	4	6	2	2	3	3	3	4	2
Harmful results strongly outweigh benefits	3	2	2	1	2	2	1	1	1	2
Attentive public to science and technology^a										
Benefits strongly outweigh harmful results	67	63	59	62	61	48	64	64	61	55
Benefits slightly outweigh harmful results	16	20	17	23	19	27	21	19	21	20
Benefits equal harmful results	8	5	7	6	10	12	8	6	5	13
Harmful results slightly outweigh benefits	4	8	13	6	6	9	3	8	11	9
Harmful results strongly outweigh benefits	5	4	4	3	4	4	4	3	2	4

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 7-18.

Public assessment of general scientific research: 1979–2001

Characteristic	1979	1981	1985	1988	1990	1992	1995	1997	1999	2001
	Sample size (number)									
All adults	1,635	1,536	2,005	975	2,033	997	2,006	2,000	1,882	1,574
Male	773	724	950	475	964	464	953	930	900	751
Female	862	812	1,054	500	1,070	533	1,053	1,070	982	823
Less than high school graduate.....	465	385	507	259	495	215	418	420	403	116
High school graduate	932	886	1,147	546	1,202	579	1,196	1,188	1,111	834
Baccalaureate and higher	238	264	349	170	336	203	392	392	368	614
Attentive public to science and technology ^a	154	381	235	116	229	94	195	288	216	195

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and be a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue area. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not total 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are for the following statements:

—People have frequently noted that scientific research has produced both beneficial and harmful consequences.

—Would you say that, on balance, the benefits of scientific research have outweighed the harmful results, or have the harmful results of scientific research been greater than its benefits?

—Would you say that the balance has been strongly in favor of beneficial results or only slightly?

—Would you say that the balance has been strongly in favor of harmful results or only slightly?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

See figure 7-6 in Volume 1.

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Appendix table 7-19.

Public assessment of funding of scientific research by the Federal Government: 1985–2001
 (Percentages)

Characteristic	1985	1988	1990	1992	1995	1997	1999	2001
All adults								
Strongly agree	9	16	17	14	19	22	21	19
Agree	70	65	62	63	61	57	61	62
Do not know	5	4	4	3	3	3	3	3
Disagree	16	14	15	18	17	15	13	15
Strongly disagree	0	1	2	2	2	3	2	1
Male								
Strongly agree	11	20	23	17	19	24	24	23
Agree	71	63	60	62	60	54	60	63
Do not know	2	2	2	2	2	3	2	2
Disagree	15	13	13	17	18	16	12	11
Strongly disagree	1	2	2	2	1	3	2	2
Female								
Strongly agree	8	11	13	11	15	20	18	16
Agree	68	68	65	64	62	59	62	61
Do not know	8	6	5	4	5	4	4	5
Disagree	16	14	16	19	16	15	14	18
Strongly disagree	0	1	1	2	2	2	2	1
Less than high school graduate								
Strongly agree	5	6	10	10	8	20	17	13
Agree	65	66	59	61	59	50	55	66
Do not know	9	7	8	5	7	5	7	5
Disagree	21	18	20	21	24	22	18	16
Strongly disagree	0	3	3	3	2	3	3	0
High school graduate								
Strongly agree	8	17	18	12	16	19	18	18
Agree	72	66	65	64	63	60	66	60
Do not know	4	3	2	3	3	3	2	3
Disagree	15	13	14	19	17	15	12	17
Strongly disagree	1	1	1	2	1	3	2	1
Baccalaureate								
Strongly agree	19	26	27	22	24	31	34	23
Agree	68	62	60	64	62	56	53	68
Do not know	2	3	2	2	2	2	1	1
Disagree	10	8	10	12	11	10	10	8
Strongly disagree	1	1	1	0	1	1	2	1
Graduate degree								
Strongly agree	20	29	31	26	43	40	40	32
Agree	70	61	58	53	46	51	51	56
Do not know	2	2	4	5	2	2	1	3
Disagree	8	7	6	14	8	5	8	8
Strongly disagree	0	1	1	2	1	2	0	1
Attentive public to science and technology^a								
Strongly agree	17	27	35	28	35	46	35	35
Agree	76	62	50	61	48	42	52	49
Do not know	0	2	4	1	1	1	0	3
Disagree	6	8	10	9	14	7	9	12
Strongly disagree	1	1	1	1	2	4	4	3

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue area, report that he or she is “very well informed” about it, and be a regular reader of a daily newspaper or relevant national magazine. Citizens who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue area. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Responses are to the following question: Even if it brings no immediate benefits, scientific research that advances the frontiers of knowledge is necessary and should be supported by the Federal Government—do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-20.

Support for Federal funding of basic scientific research^a, by level of Index of Scientific Promise, Index of Scientific Reservation, and by education: 2001
 (Percentages)

Level of index and level of education	Disagree	Unsure	Agree	Sample size (number)
Index of Scientific Promise^b				
All adults	16	3	81	1,569
Low	29	4	68	233
Moderate	15	3	82	1,107
High	6	1	93	229
Less than high school graduate	16	5	79	116
Low	29	6	65	20
Moderate	15	6	79	82
High	0	0	100	14
High school graduate	18	3	78	833
Low	33	3	64	140
Moderate	17	4	79	589
High	5	0	95	104
Baccalaureate and higher	9	1	90	610
Low	13	2	85	71
Moderate	8	1	91	430
High	9	5	86	109
Index of Scientific Reservation^c				
All adults	16	3	81	1,574
Low	7	1	91	197
Moderate	13	3	84	984
High	25	4	71	393
Less than high school graduate	16	5	79	116
Low	0	0	100	9
Moderate	14	5	81	49
High	20	6	74	58
High school graduate	18	3	79	834
Low	8	0	92	68
Moderate	14	3	83	511
High	30	4	67	255
Baccalaureate and higher	9	1	90	614
Low	8	4	88	119
Moderate	9	1	90	416
High	9	0	91	79

Low = 0–49; moderate = 50–74; high = 75–100

^aResponses are to the following question: Even if it brings no immediate benefits, scientific research that advances the frontiers of knowledge is necessary and should be supported by the Federal Government—do you strongly agree, agree, disagree, or strongly disagree?

^bThe Index of Scientific Promise includes responses to the following statements:

Now I would like to read you some statements like those you might find in a newspaper or magazine article. For each statement, please tell me if you generally agree or disagree. If you feel especially strongly about a statement, please tell me that you strongly agree or disagree.

—Science and technology are making our lives healthier, easier, and more comfortable.

—Most scientists want to work on things that will make life better for the average person.

—With the application of science and new technology, work will become more interesting.

—Because of science and technology, there will be more opportunities for the next generation.

^cThe Index of Scientific Reservation includes responses to the following statements:

Now I would like to read you some statements like those you might find in a newspaper or magazine article. For each statement, please tell me if you generally agree or disagree. If you feel especially strongly about a statement, please tell me that you strongly agree or strongly disagree.

—We depend too much on science and not enough on faith.

—It is not important for me to know about science in my daily life.

—Science makes our way of life change too fast.

NOTES: The Index of Scientific Promise and Index of Scientific Reservation are factor scores converted to a 0–100 scale. Factor analysis verified the existence of a two-factor structure. The lowest possible factor score (strong disagreement with all of the items) was set to 0, and the highest possible factor score (strong agreement with all of the items) was set to 100. All factor scores between the highest and the lowest were placed on the 0–100 scale accordingly. Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See figure 7-7 in Volume 1.

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Appendix table 7-21.

Public preferences for level of Federal Government spending on selected policy issues: 1981–2001
 (Percentages)

Policy issue	1981	1983	1985	1988	1990	1992	1997	1999	2001
Exploring space									
Too little	18	17	9	17	9	12	14	15	11
Too much	43	39	45	42	52	50	45	46	48
Reducing pollution									
Too little	52	54	69	76	76	72	65	65	63
Too much	14	11	6	4	5	7	8	7	6
Improving health care									
Too little	61	—	68	68	75	79	68	71	70
Too much	6	—	3	2	3	5	7	5	4
Supporting scientific research									
Too little	31	—	29	34	30	34	34	37	36
Too much	18	—	18	15	16	19	14	14	14
Improving education									
Too little	62	71	73	76	77	81	76	75	76
Too much	6	5	3	4	4	4	6	6	5
Helping older people									
Too little	73	—	72	76	75	73	66	71	73
Too much	3	—	3	2	2	4	5	4	3
Improving national defense ^a									
Too little	33	19	11	11	15	15	23	31	29
Too much	26	47	50	53	40	40	32	25	25
Helping low-income persons									
Too little	45	—	54	55	57	56	44	49	53
Too much	24	—	13	12	15	17	23	19	15
Sample size (number)	1,659	1,631	2,005	2,041	2,033	2,001	2,000	1,882	1,574

— = Not asked

^aThe “improving national defense” question was asked on a split ballot in 1988; therefore, the number of responses was only 1,013.

NOTES: Responses are to the following statement: “We are faced with many problems in this country. I’m going to name some of these problems, and for each one, I’d like you to tell me if you think that the Government is spending too little money on it, about the right amount, or too much.” Not shown are responses “about the right amount” and “don’t know” which is why percentages do not add to 100 percent.

SOURCE: National Science Foundation, Division of Science Resource Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-22.
Public preferences for level of Federal Government spending: 2001
(Percentages)

Characteristic	Exploring space	Reducing pollution	Improving health care	Supporting scientific research	Improving education	Helping older people	Improving national defense	Helping low-income people
All adults								
Too little	11	63	70	36	76	73	29	53
About right	38	28	24	44	17	21	41	30
Too much	48	6	4	14	5	3	25	15
Do not know	3	3	2	7	1	2	4	2
Male								
Too little	16	62	63	40	72	68	33	51
About right	39	29	31	44	20	25	40	31
Too much	43	7	5	12	7	5	25	16
Do not know	2	1	1	5	1	1	2	2
Female								
Too little	7	64	77	33	80	78	26	55
About right	36	27	18	44	15	18	42	28
Too much	53	4	3	16	4	1	26	14
Do not know	4	4	2	8	1	3	6	2
Less than high school graduate								
Too little	8	61	66	35	69	81	27	68
About right	24	28	29	34	21	13	37	18
Too much	65	9	4	26	8	4	29	11
Do not know	4	2	1	5	2	2	7	3
High school graduate								
Too little	11	64	73	34	79	76	32	54
About right	37	28	21	46	16	20	42	29
Too much	50	5	4	14	4	3	22	16
Do not know	2	2	2	6	1	1	4	1
Baccalaureate and higher								
Too little	16	63	64	42	74	62	24	41
About right	50	29	28	45	18	31	43	39
Too much	31	5	5	5	7	3	31	17
Do not know	3	3	3	8	1	3	2	3
Attentive public to science and technology^a								
Too little	28	70	66	52	74	69	33	59
About right	40	26	31	37	16	26	37	23
Too much	31	3	2	9	7	3	29	17
Do not know	1	1	1	2	3	3	1	1

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: Responses are to the following statement: We are faced with many problems in this country. I'm going to name some of these problems, and for each one, I'd like you to tell me if you think that the government is spending too little money on it, about the right amount, or too much.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-23.
Public assessment of genetic engineering: 1985–2001

Characteristic	1985	1990	1995	1997	1999	2001
	Percent					
All adults						
Benefits strongly outweigh harmful results	23	20	21	19	20	19
Benefits slightly outweigh harmful results	26	27	22	23	24	21
Benefits equal harmful results	12	16	22	22	18	28
Harmful results slightly outweigh benefits	14	19	23	20	22	19
Harmful results strongly outweigh benefits	25	18	12	16	16	14
Male						
Benefits strongly outweigh harmful results	26	21	24	23	24	23
Benefits slightly outweigh harmful results	28	31	22	26	26	22
Benefits equal harmful results	11	14	21	20	17	27
Harmful results slightly outweigh benefits	13	18	22	17	21	16
Harmful results strongly outweigh benefits	22	16	10	14	12	12
Female						
Benefits strongly outweigh harmful results	19	19	18	16	16	14
Benefits slightly outweigh harmful results	25	23	22	21	22	20
Benefits equal harmful results	14	17	22	23	20	28
Harmful results slightly outweigh benefits	15	21	23	22	22	22
Harmful results strongly outweigh benefits	27	20	15	18	20	15
Less than high school graduate						
Benefits strongly outweigh harmful results	19	16	10	15	18	15
Benefits slightly outweigh harmful results	29	27	19	18	19	24
Benefits equal harmful results	16	25	30	23	27	27
Harmful results slightly outweigh benefits	12	17	29	30	21	20
Harmful results strongly outweigh benefits	24	15	13	14	15	13
High school graduate						
Benefits strongly outweigh harmful results	21	19	20	18	18	18
Benefits slightly outweigh harmful results	24	27	21	24	24	19
Benefits equal harmful results	13	12	21	21	16	28
Harmful results slightly outweigh benefits	15	21	23	18	24	21
Harmful results strongly outweigh benefits	27	21	14	19	18	15
Baccalaureate and higher						
Benefits strongly outweigh harmful results	33	29	35	27	27	24
Benefits slightly outweigh harmful results	29	28	30	28	28	24
Benefits equal harmful results	7	15	16	21	16	27
Harmful results slightly outweigh benefits	13	15	14	14	17	15
Harmful results strongly outweigh benefits	18	13	6	10	12	10
Attentive public to science and technology^a						
Benefits strongly outweigh harmful results	37	32	42	36	33	29
Benefits slightly outweigh harmful results	28	30	22	24	31	20
Benefits equal harmful results	9	9	16	13	8	20
Harmful results slightly outweigh benefits	12	12	13	16	19	20
Harmful results strongly outweigh benefits	14	17	7	11	9	10
Attentive public to medical research^a						
Benefits strongly outweigh harmful results	29	31	34	27	28	25
Benefits slightly outweigh harmful results	24	27	21	25	24	19
Benefits equal harmful results	12	12	17	18	12	27
Harmful results slightly outweigh benefits	11	17	18	18	23	20
Harmful results strongly outweigh benefits	24	13	9	12	13	9
Sample size (number)						
All adults						
Male	2,005	2,033	2,006	2,000	1,882	1,574
Female	950	964	953	930	900	751
Less than high school graduate	1,054	1,070	1,053	1,070	982	823
High school graduate	507	495	418	420	403	116
Baccalaureate and higher	1,143	1,179	1,196	1,188	1,111	834
Attentive public to science and technology ^a	349	359	392	392	368	614
Attentive public to medical research ^a	235	229	195	288	216	195
	349	337	310	377	301	240

See explanatory notes, is any, and SOURCE at end of table

Appendix table 7-23.

Public assessment of genetic engineering: 1985–2001

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. In 1985, the question was worded: Some persons have argued that the creation of new life forms through genetic engineering constitutes a serious risk, while other persons have argued that this research may yield major benefits for society. In your opinion, are the risks of genetic engineering greater than the benefits, or are the benefits of genetic engineering research greater than the risks? Would you say that the benefits are substantially greater than the risks, or only slightly greater than the risks? Would you say that the risks are substantially greater than the benefits or only slightly greater than the benefits?

—In 1990, the question was worded: Some persons have argued that the creation of new life forms through genetic engineering research constitutes a serious risk, while other persons have argued that this research may yield major benefits for society. In your opinion, are the risks of genetic engineering research greater than its benefits, or are the benefits of genetic engineering research greater than its risks? Would you say that the benefits have substantially exceeded the risks or only slightly exceeded the risks? Would you say that the risks have substantially exceeded the benefits or only slightly exceeded the benefits?

—In 1995, the question was worded: Some persons have argued that the creation of new life forms through genetic engineering research constitutes a serious risk, while other persons have argued that this research may yield major benefits for society. In your opinion, have the benefits of genetic engineering research outweighed the harmful results, or have the harmful results of genetic engineering research been greater than its benefits? Would you say that the balance has been strongly in favor of beneficial results or only slightly? Would you say that the balance has been strongly in favor of harmful results or only slightly?

—In 1997 and 1999, half of the respondents were asked the question used in 1995. The other half were asked: Some persons have argued that the modification of existing life forms through genetic engineering research constitutes a serious risk, while other persons have argued that this research may yield major benefits for society. In your opinion, have the benefits of engineering research outweighed the harmful results, or have the harmful results of genetic engineering research been greater than its benefits? Would you say that the balance has been strongly in favor of beneficial results or only slightly? Would you say that the balance has been strongly in favor of harmful results or only slightly? In 2001, all respondents were asked this question.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

See figure 7-8 in Volume 1.

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Appendix table 7-24.

Public assessment of selected biotechnology applications: 2001
 (Percentages)

Characteristic		Food production	Genetic testing	Animal cloning
All adults (number = 1,574)				
Strongly support	14	51	15	
Moderately support	47	38	32	
No opinion	2	*	2	
Moderately oppose	21	6	21	
Strongly oppose	15	3	27	
Do not know	2	2	3	
Male (number = 751)				
Strongly support	19	52	19	
Moderately support	51	39	38	
No opinion	1	*	1	
Moderately oppose	16	6	18	
Strongly oppose	12	2	22	
Do not know	1	1	2	
Female (number = 823)				
Strongly support	9	50	12	
Moderately support	43	38	27	
No opinion	2	1	3	
Moderately oppose	25	5	23	
Strongly oppose	18	3	32	
Do not know	3	3	3	
Less than high school graduate (number = 116)				
Strongly support	14	48	26	
Moderately support	47	33	28	
No opinion	1	0	1	
Moderately oppose	18	8	16	
Strongly oppose	20	6	27	
Do not know	*	5	3	
High school graduate (number= 834)				
Strongly support	12	50	12	
Moderately support	46	40	32	
No opinion	2	*	1	
Moderately oppose	24	6	21	
Strongly oppose	15	3	31	
Do not know	2	2	3	
Baccalaureate and higher (number = 614)				
Strongly support	19	55	16	
Moderately support	49	38	37	
No opinion	2	1	3	
Moderately oppose	17	4	24	
Strongly oppose	12	2	19	
Do not know	1	1	3	
Attentive public to science and technology (number = 195)				
Strongly support	26	62	21	
Moderately support	50	30	36	
No opinion	1	*	2	
Moderately oppose	12	3	18	
Strongly oppose	9	3	20	
Do not know	3	1	3	

* = <.5

NOTES: Percentages may not add to 100 because of rounding. Responses are to the following statements:

As you may know, some food products and medicines are being developed using new scientific techniques. The general area is called *biotechnology* and includes tools such as genetic engineering and genetic modification of food. I'm going to name three types of biotechnology applications. I'd like you to tell me if you strongly support, moderately support, moderately oppose, or strongly oppose these uses of biotechnology.

-Using modern biotechnology in the production of foods, for example, to make them higher in protein, keep longer, or taste better.

-Using genetic testing to detect diseases we might have inherited from our parents, such as cystic fibrosis.

-Cloning animals such as sheep whose milk can be used to make drugs and vaccines. Overall would you say you strongly support, moderately support, moderately oppose, or strongly oppose this use of biotechnology?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-25.

Public assessment of space exploration: 1985–2001

Characteristic	1985	1988	1990	1992	1995	1997	1999	2001
	Percent							
All adults								
Benefits strongly outweigh costs	27	22	18	17	22	24	24	22
Benefits slightly outweigh costs	27	25	25	26	24	24	25	23
Benefits equal costs	7	9	9	9	8	10	8	12
Costs slightly outweigh benefits	15	18	17	22	17	17	17	15
Costs strongly outweigh benefits	24	26	31	26	28	25	26	28
Male								
Benefits strongly outweigh costs	33	28	23	17	28	31	31	28
Benefits slightly outweigh costs	31	27	26	26	25	25	26	22
Benefits equal costs	6	10	8	9	6	8	5	10
Costs slightly outweigh benefits	12	13	16	22	16	15	15	13
Costs strongly outweigh benefits	18	22	27	26	24	21	23	26
Female								
Benefits strongly outweigh costs	21	16	14	11	17	18	19	17
Benefits slightly outweigh costs	24	23	24	25	23	23	24	23
Benefits equal costs	8	9	10	11	10	12	10	14
Costs slightly outweigh benefits	17	23	17	27	18	18	18	16
Costs strongly outweigh benefits	30	29	35	26	32	29	29	29
Less than high school graduate								
Benefits strongly outweigh costs	22	16	15	14	14	18	15	13
Benefits slightly outweigh costs	25	26	20	29	20	21	25	20
Benefits equal costs	10	9	17	12	13	16	15	10
Costs slightly outweigh benefits	17	21	16	24	21	24	18	19
Costs strongly outweigh benefits	26	29	32	21	31	21	27	37
High school graduate								
Benefits strongly outweigh costs	26	21	17	15	23	23	26	22
Benefits slightly outweigh costs	28	25	25	25	24	23	23	22
Benefits equal costs	6	9	7	9	6	9	5	12
Costs slightly outweigh benefits	14	18	17	23	17	16	17	15
Costs strongly outweigh benefits	26	27	34	28	30	29	29	28
Baccalaureate and higher								
Benefits strongly outweigh costs	36	33	27	22	32	31	31	30
Benefits slightly outweigh costs	28	26	28	26	27	29	29	25
Benefits equal costs	6	10	7	6	8	8	6	14
Costs slightly outweigh benefits	13	15	16	18	14	12	16	11
Costs strongly outweigh benefits	17	16	22	28	20	20	18	19
Attentive public to science and technology^a								
Benefits strongly outweigh costs	39	38	26	28	32	44	34	35
Benefits slightly outweigh costs	27	28	33	26	25	22	28	29
Benefits equal costs	7	6	4	11	7	6	2	7
Costs slightly outweigh benefits	13	10	14	20	16	11	17	13
Costs strongly outweigh benefits	14	21	23	15	20	17	19	16
Attentive public to space exploration^a								
Benefits strongly outweigh costs	49	46	36	38	52	57	41	49
Benefits slightly outweigh costs	25	30	36	44	23	19	26	26
Benefits equal costs	8	4	3	3	4	6	2	8
Costs slightly outweigh benefits	11	7	11	6	12	10	19	6
Costs strongly outweigh benefits	7	13	14	9	9	8	12	11
Sample size (number)								
All adults								
All	2,005	2,041	2,033	1,004	2,006	2,000	1,882	1,574
Male	950	958	964	486	953	930	900	751
Female	1,054	1,084	1,070	533	1,053	1,070	982	823
Less than high school graduate	507	530	495	215	418	420	403	116
High school graduate	1,147	1,158	1,202	623	1,196	1,188	1,111	834
Baccalaureate and higher	349	353	336	203	392	392	368	614
Attentive public to science and technology ^a	235	233	229	105	195	288	216	195
Attentive public to space exploration ^a	184	163	123	51	99	168	120	99

See explanatory notes, if any, and SOURCE at end of table

Appendix table 7-25.

Public assessment of space exploration: 1985–2001

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following questions: Many current issues in science and technology may be viewed as a judgment of relative benefits. Thinking first about the space program, some persons have argued that the costs of the space program may have exceeded its benefits, while other people have argued that the benefits of space exploration have exceeded its costs.

–In your opinion, have the costs of space exploration exceeded its benefits, or have the benefits of space exploration exceeded its costs?

–Would you say that the benefits have substantially exceeded the costs, or only slightly exceeded the costs?

–Would you say that the costs have substantially exceeded the benefits or only slightly exceeded the benefits?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

See figure 7-12 in Volume 1.

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Appendix table 7-26.
Public assessment of use of mice in scientific research: 2001
(Percentages)

Characteristic	Strongly agree	Agree	Do not know	Disagree	Strongly disagree	Sample size (number)
All adults	9	59	3	23	7	1,574
Male	12	63	2	18	5	751
Female	6	55	4	27	8	823
Formal education						
Less than high school	3	58	4	23	12	116
High school graduate	10	58	3	24	6	834
Baccalaureate degree and higher	11	61	2	21	5	614
Science/mathematics education^a						
Low	8	57	4	24	7	674
Middle	7	61	2	22	8	469
High	13	59	2	21	4	431
Age (years)						
18–24	3	52	2	26	17	154
25–34	9	54	2	29	6	288
35–44	11	59	2	23	5	320
45–64	10	59	4	22	5	557
65 and older	8	69	4	16	3	240
Attentiveness to science and technology^b						
Attentive public	13	54	4	21	8	195
Interested public	10	61	2	21	6	755
Residual public	6	58	3	26	7	624
Question order^c						
Mice first	9	59	4	23	5	787
Dogs and chimps first	9	59	2	23	8	787

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/mathematics courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

^cHalf the survey respondents were first asked about their attitudes toward the use of mice in scientific research, and then asked about their attitudes toward the use of dogs and chimpanzees in scientific research. The other respondents were asked these questions in the opposite order. See appendix table 7-27.

NOTE: A few respondents did not provide information about their highest level of education. Responses are to the following statement: Scientists should be allowed to do research that causes pain and injury to animals like mice if it produces new information about human health problems. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-27.

Public assessment of use of dogs and chimpanzees in scientific research: 1988–2001
 (Percentages)

Characteristic	1988	1990	1992	1995	1997	1999	2001
	Percent						
All adults							
Strongly agree	5	5	9	7	7	7	6
Agree	48	45	44	43	39	43	38
Do not know	5	6	5	4	3	3	4
Disagree	28	31	28	33	33	30	35
Strongly disagree	14	13	14	13	18	17	17
Male							
Strongly agree	7	7	13	10	11	9	9
Agree	55	55	52	52	47	53	47
Do not know	5	4	3	3	3	3	4
Disagree	26	26	25	26	28	27	30
Strongly disagree	7	8	7	9	11	8	10
Female							
Strongly agree	4	3	6	4	5	5	3
Agree	41	36	37	35	32	33	30
Do not know	6	7	6	5	3	4	5
Disagree	30	35	31	40	37	33	39
Strongly disagree	19	19	20	16	23	25	23
Less than high school graduate							
Strongly agree	3	4	8	7	4	11	3
Agree	53	49	47	44	28	44	38
Do not know	6	6	4	5	2	4	3
Disagree	26	30	28	34	43	29	40
Strongly disagree	12	11	13	10	23	12	16
High school graduate							
Strongly agree	5	5	8	5	8	5	6
Agree	44	41	42	41	39	42	38
Do not know	5	6	5	4	4	3	5
Disagree	31	32	30	35	31	31	34
Strongly disagree	15	16	15	15	18	19	17
Baccalaureate and higher							
Strongly agree	9	6	13	11	10	10	8
Agree	52	53	50	48	51	47	40
Do not know	7	7	5	4	4	3	4
Disagree	23	26	22	26	26	25	32
Strongly disagree	9	8	10	11	9	15	16
Attentive public to science and technology^a							
Strongly agree	7	7	10	15	10	9	8
Agree	52	43	45	42	36	48	44
Do not know	6	7	3	3	6	2	3
Disagree	21	29	24	25	24	23	31
Strongly disagree	14	14	18	15	24	18	14
Adults 18–24 years old							
Strongly agree	4	3	15	4	6	4	4
Agree	43	35	37	35	20	34	38
Do not know	3	4	2	2	4	0	4
Disagree	29	32	26	37	41	27	32
Strongly disagree	21	26	20	22	29	35	22
Adults 25–34 years old							
Strongly agree	5	5	10	8	7	4	5
Agree	45	40	40	41	42	48	32
Do not know	5	4	3	4	2	1	3
Disagree	30	35	33	34	33	35	42
Strongly disagree	15	16	14	13	16	12	17

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 7-27.

Public assessment of use of dogs and chimpanzees in scientific research: 1988–2001
 (Percentages)

Characteristic	1988	1990	1992	1995	1997	1999	2001
Adults 35–44 years old							
Strongly agree	5	6	9	8	7	5	6
Agree	47	44	41	41	41	45	39
Do not know	6	6	6	4	4	4	2
Disagree	28	31	30	34	33	30	33
Strongly disagree	14	13	14	13	15	16	20
Adults 45–54 years old							
Strongly agree	4	4	6	6	7	7	5
Agree	50	54	41	43	38	52	35
Do not know	5	4	5	4	5	3	7
Disagree	27	27	31	35	29	22	36
Strongly disagree	14	11	17	12	21	16	17
Adults 55–64 years old							
Strongly agree	5	3	9	10	10	8	8
Agree	52	51	47	48	45	44	39
Do not know	6	10	8	4	2	1	4
Disagree	27	29	24	31	29	33	35
Strongly disagree	10	7	12	7	14	14	15
Adults 65 and older							
Strongly agree	6	6	7	5	8	15	7
Agree	53	52	61	53	45	37	48
Do not know	6	9	5	7	4	10	6
Disagree	27	26	21	27	33	28	32
Strongly disagree	8	7	6	8	10	10	7
Sample size (number)							
All adults							
Male	958	964	950	953	454	455	751
Female	1,084	1,070	1,051	1,053	542	449	823
Less than high school graduate	530	495	403	418	216	188	116
High school graduate	1,158	1,202	1,202	1,196	579	534	834
Baccalaureate and higher	353	336	306	392	200	182	614
Age (years)							
18–24	318	322	276	275	146	134	154
25–34	485	497	459	471	223	198	288
35–44	372	366	430	423	199	188	320
45–54	264	264	318	308	171	140	309
55–64	267	269	191	205	90	98	248
65 and older	332	315	326	321	163	145	240

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Responses are to the following statement: Scientists should be allowed to do research that causes pain and injury to animals like dogs and chimpanzees if it produces new information about human health problems. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

Appendix table 7-28.
Public belief in global warming: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Believe	77
Do not believe	12
Not sure/refused	11
Male (number = 751)	
Believe	78
Do not believe	14
Not sure/refused	8
Female (number = 823)	
Believe	76
Do not believe	9
Not sure/refused	14
Less than high school graduate (number = 116)	
Believe	71
Do not believe	10
Not sure/refused	18
High school graduate (number = 834)	
Believe	77
Do not believe	12
Not sure/refused	11
Baccalaureate and higher (number = 614)	
Believe	80
Do not believe	12
Not sure/refused	8
Attentive public to science and technology^a (number = 195)	
Believe	82
Do not believe	12
Not sure/refused	6

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Percentages may not add to 100 because of rounding. Responses are to the following question: Do you believe the theory that increased carbon dioxide and other gases released into the atmosphere will, if unchecked, lead to global warming and an increase in average temperatures?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-29.
Public assessment of global warming: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Very serious.....	53
Somewhat serious	33
Not a serious problem	10
Not sure/refused	4
Male (number = 751)	
Very serious.....	55
Somewhat serious	32
Not a serious problem	12
Not sure/refused	2
Female (number = 823)	
Very serious.....	52
Somewhat serious	34
Not a serious problem	9
Not sure/refused	5
Less than high school graduate (number = 116)	
Very serious.....	51
Somewhat serious	31
Not a serious problem	10
Not sure/refused	8
High school graduate (number = 834)	
Very serious.....	53
Somewhat serious	33
Not a serious problem	11
Not sure/refused	3
Baccalaureate and higher (number = 614)	
Very serious.....	56
Somewhat serious	34
Not a serious problem	9
Not sure/refused	2
Attentive public to science and technology^a (number = 195)	
Very serious.....	62
Somewhat serious	24
Not a serious problem	12
Not sure/refused	2

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Percentages may not add to 100 because of rounding. Responses are to the following question: Do you think that the possibility of global warming should be treated as a very serious problem, a somewhat serious problem, or not a serious problem?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-30.

Public assessment of the quality of science and mathematics education in the United States: 1985–2001

Characteristic	1985	1988	1990	1992	1995	1997	1999	2001
	Percent							
All adults								
Strongly agree	14	18	24	24	21	23	21	17
Agree	49	50	48	51	48	45	42	51
Do not know	8	7	4	4	6	6	7	7
Disagree	27	23	22	19	22	22	26	24
Strongly disagree	2	2	2	2	3	4	4	2
Male								
Strongly agree	14	17	24	24	20	22	19	17
Agree	49	50	50	51	49	44	46	52
Do not know	7	7	3	3	5	6	6	6
Disagree	28	23	21	19	23	25	25	23
Strongly disagree	2	2	2	3	3	3	4	2
Female								
Strongly agree	14	18	24	24	21	24	23	16
Agree	49	49	46	50	48	45	38	50
Do not know	9	7	5	5	7	7	7	7
Disagree	26	24	22	19	21	20	28	25
Strongly disagree	2	2	3	2	3	4	4	2
Less than high school graduate								
Strongly agree	7	11	19	17	14	14	14	8
Agree	53	51	45	51	47	45	36	44
Do not know	11	14	9	5	13	10	12	9
Disagree	27	22	23	24	22	27	32	38
Strongly disagree	2	2	4	3	4	4	6	0
High school graduate								
Strongly agree	15	19	24	24	20	24	22	16
Agree	48	49	49	50	49	45	44	52
Do not know	7	5	3	4	5	6	5	7
Disagree	28	25	22	19	23	21	26	23
Strongly disagree	2	2	2	3	3	4	3	2
Baccalaureate and higher								
Strongly agree	22	24	30	29	28	29	27	24
Agree	45	50	48	53	48	44	44	52
Do not know	5	4	3	2	3	4	5	5
Disagree	25	20	16	15	19	20	21	17
Strongly disagree	3	2	3	1	2	3	3	2
Attentive public for science and technology^a								
Strongly agree	20	26	36	31	32	33	32	22
Agree	53	48	46	49	42	37	36	45
Do not know	5	5	1	3	2	4	5	7
Disagree	20	20	15	14	21	21	19	22
Strongly disagree	2	1	2	4	3	5	7	4
Sample size (number)								
All adults								
Male	2,005	2,041	2,033	1,004	2,006	2,000	1,882	1,574
Female	950	958	964	486	953	930	900	751
Less than high school graduate	1,054	1,084	1,070	533	1,053	1,070	982	823
High school graduate	507	530	495	215	418	420	403	116
Baccalaureate and higher	1,147	1,158	1,202	623	1,196	1,188	1,111	834
Attentive public to science and technology ^a	349	353	336	203	392	392	368	614
	235	233	229	105	195	288	216	195

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Responses are to the following statement: The quality of science and mathematics education in American schools is inadequate. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-31.

Public confidence in leadership of various institutions: 1973–2000

(Percentages)

Institution	1973	1974	1975	1976	1977	1978	1980	1982	1983	1984	1986	1987	1988	1989	1990	1991	1993	1994	1996	1998	2000
Medicine	54	60	50	54	51	46	52	45	51	50	46	52	51	46	46	48	39	41	45	44	44
Scientific community	37	45	39	43	41	36	41	38	41	44	39	45	39	40	37	41	37	38	39	40	41
Military	32	40	35	39	36	29	28	31	29	36	31	34	34	32	33	60	42	37	37	36	39
U.S. Supreme Court	31	33	31	35	35	28	25	30	27	33	30	36	35	34	35	37	31	30	28	37	32
Banks and financial institutions	—	—	32	39	42	33	32	27	24	31	21	27	27	19	18	12	15	18	25	26	29
Major companies	29	31	19	22	27	22	27	23	24	30	24	30	25	24	25	20	21	25	23	26	28
Organized religion	35	44	24	30	40	31	35	32	28	31	25	29	20	22	23	25	23	24	25	27	28
Education	37	49	31	37	41	28	30	33	29	28	28	35	29	30	27	30	22	25	23	27	27
Executive Branch of Federal Government	29	14	13	13	28	12	12	19	13	18	21	18	16	20	23	26	12	11	10	14	13
Organized labor	15	18	10	12	15	11	15	12	8	8	8	10	10	9	11	11	8	10	11	11	13
Congress	23	17	13	14	19	13	9	13	10	12	16	16	15	17	15	18	7	8	8	11	12
Press	23	26	24	28	25	20	22	18	13	17	18	18	18	17	15	16	11	8	11	9	10
Television	18	23	18	19	17	14	16	14	12	13	15	12	14	14	14	14	12	9	10	10	10
Average^a	30	33	26	29	31	24	26	26	24	27	25	28	26	25	25	29	22	23	24	25	25
Sample size (number)	1,504	1,484	1,490	1,499	1,530	1,532	1,468	1,506	1,599	989	1,470	1,466	997	1,035	899	1,017	1,057	2,011	1,925	1,911	1,887

— = not asked

^aAverage does not include banks and financial institutions.

NOTES: A few respondents did not provide information about their highest level of education. The survey was not conducted in 1979 and 1981, and the question was not asked in 1985. Percentages represent those respondents expressing a "great deal of confidence" when asked the following question: "As far as the people running these institutions are concerned, would you say that you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?"

SOURCE: J.A. Davis and T.W. Smith, *General Social Surveys, Cumulative Codebook* (Chicago: University of Chicago, National Opinion Research Center).

See figure 7-14 in Volume 1.

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Appendix table 7-32.
Response to statement, “Scientists are helping to solve challenging problems”: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	17
Agree	79
Do not know	1
Disagree	2
Strongly disagree	*
Male (number = 751)	
Strongly agree	21
Agree	77
Do not know	1
Disagree	1
Strongly disagree	1
Female (number = 823)	
Strongly agree	15
Agree	81
Do not know	2
Disagree	3
Strongly disagree	1
Less than high school graduate (number = 116)	
Strongly agree	9
Agree	85
Do not know	2
Disagree	4
Strongly disagree	2
High school graduate (number = 834)	
Strongly agree	17
Agree	79
Do not know	1
Disagree	2
Strongly disagree	1
Baccalaureate and higher (number = 614)	
Strongly agree	24
Agree	75
Do not know	*
Disagree	*
Strongly disagree	*
Attentive public to science and technology^a (number = 195)	
Strongly agree	31
Agree	68
Do not know	1
Disagree	*
Strongly disagree	0

* = <.5

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-33.
Response to statement, “Scientific researchers are dedicated people who work for the good of humanity”: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	11
Agree	75
Do not know	3
Disagree	9
Strongly disagree	1
Male (number = 751)	
Strongly agree	11
Agree	74
Do not know	3
Disagree	11
Strongly disagree	1
Female (number = 823)	
Strongly agree	11
Agree	76
Do not know	4
Disagree	8
Strongly disagree	1
Less than high school graduate (number = 116)	
Strongly agree	6
Agree	82
Do not know	3
Disagree	7
Strongly disagree	1
High school graduate (number = 834)	
Strongly agree	13
Agree	74
Do not know	3
Disagree	9
Strongly disagree	1
Baccalaureate and higher (number = 614)	
Strongly agree	10
Agree	73
Do not know	4
Disagree	12
Strongly disagree	1
Attentive public to science and technology^a (number = 195)	
Strongly agree	23
Agree	61
Do not know	4
Disagree	10
Strongly disagree	1

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-34.
Response to statement, “A scientist usually works alone”: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	2
Agree	15
Do not know	3
Disagree	65
Strongly disagree	15
Male (number = 751)	
Strongly agree	2
Agree	15
Do not know	2
Disagree	64
Strongly disagree	17
Female (number = 823)	
Strongly agree	2
Agree	15
Do not know	3
Disagree	66
Strongly disagree	13
Less than high school graduate (number = 116)	
Strongly agree	4
Agree	22
Do not know	5
Disagree	55
Strongly disagree	14
High school graduate (number = 834)	
Strongly agree	2
Agree	15
Do not know	2
Disagree	66
Strongly disagree	14
Baccalaureate and higher (number = 614)	
Strongly agree	1
Agree	11
Do not know	2
Disagree	70
Strongly disagree	17
Attentive public to science and technology^a (number = 195)	
Strongly agree	5
Agree	16
Do not know	3
Disagree	58
Strongly disagree	18

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-35.
Response to statement, “Scientists don’t get as much fun out of life as other people do”: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	3
Agree	16
Do not know	8
Disagree	63
Strongly disagree	9
Male (number = 751)	
Strongly agree	4
Agree	17
Do not know	8
Disagree	61
Strongly disagree	11
Female (number = 823)	
Strongly agree	3
Agree	16
Do not know	8
Disagree	66
Strongly disagree	8
Less than high school graduate (number = 116)	
Strongly agree	3
Agree	34
Do not know	8
Disagree	49
Strongly disagree	6
High school graduate (number = 834)	
Strongly agree	4
Agree	14
Do not know	9
Disagree	65
Strongly disagree	8
Baccalaureate and higher (number = 614)	
Strongly agree	1
Agree	10
Do not know	6
Disagree	69
Strongly disagree	13
Attentive public to science and technology^a (number = 195)	
Strongly agree	5
Agree	20
Do not know	7
Disagree	48
Strongly disagree	21

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-36.
Response to statement, “Scientists are apt to be odd and peculiar people”: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	2
Agree	23
Do not know	4
Disagree	63
Strongly disagree	8
Male (number = 751)	
Strongly agree	3
Agree	25
Do not know	3
Disagree	62
Strongly disagree	7
Female (number = 823)	
Strongly agree	2
Agree	20
Do not know	5
Disagree	65
Strongly disagree	8
Less than high school graduate (number = 116)	
Strongly agree	3
Agree	34
Do not know	4
Disagree	52
Strongly disagree	6
High school graduate (number = 834)	
Strongly agree	2
Agree	21
Do not know	4
Disagree	65
Strongly disagree	7
Baccalaureate and higher (number = 614)	
Strongly agree	1
Agree	19
Do not know	2
Disagree	67
Strongly disagree	11
Attentive public to science and technology^a (number = 195)	
Strongly agree	3
Agree	25
Do not know	5
Disagree	54
Strongly disagree	13

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-37.
Response to statement, "Scientists have few other interests but their work": 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	2
Agree	27
Do not know	8
Disagree	59
Strongly disagree	5
Male (number = 751)	
Strongly agree	2
Agree	31
Do not know	6
Disagree	57
Strongly disagree	5
Female (number = 823)	
Strongly agree	2
Agree	23
Do not know	9
Disagree	61
Strongly disagree	4
Less than high school graduate (number = 116)	
Strongly agree	2
Agree	36
Do not know	8
Disagree	50
Strongly disagree	3
High school graduate (number = 834)	
Strongly agree	3
Agree	28
Do not know	8
Disagree	58
Strongly disagree	4
Baccalaureate and higher (number = 614)	
Strongly agree	1
Agree	17
Do not know	6
Disagree	69
Strongly disagree	7
Attentive public to science and technology^a (number = 195)	
Strongly agree	3
Agree	19
Do not know	7
Disagree	62
Strongly disagree	9

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-38.
Response to statement, “Scientists are not likely to be very religious people”: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	4
Agree	26
Do not know	11
Disagree	54
Strongly disagree	5
Male (number = 751)	
Strongly agree	4
Agree	30
Do not know	11
Disagree	50
Strongly disagree	5
Female (number = 823)	
Strongly agree	3
Agree	23
Do not know	12
Disagree	57
Strongly disagree	5
Less than high school graduate (number = 116)	
Strongly agree	5
Agree	29
Do not know	12
Disagree	51
Strongly disagree	3
High school graduate (number = 834)	
Strongly agree	3
Agree	27
Do not know	11
Disagree	54
Strongly disagree	5
Baccalaureate and higher (number = 614)	
Strongly agree	3
Agree	24
Do not know	10
Disagree	57
Strongly disagree	6
Attentive public to science and technology^a (number = 195)	
Strongly agree	6
Agree	23
Do not know	9
Disagree	52
Strongly disagree	9

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-39.
Attitude toward or interest in science career: 2001
(Percentages)

Characteristic	Daughter	Son
All adults (number = 1,574)		
Happy	80	80
Not care	18	18
Unhappy	2	2
Male (number = 751)		
Happy	81	80
Not care	18	19
Unhappy	1	1
Female (number = 823)		
Happy	79	80
Not care	18	18
Unhappy	3	3
Less than high school graduate (number = 116)		
Happy	80	78
Not care	13	15
Unhappy	8	7
High school graduate (number = 834)		
Happy	78	78
Not care	21	21
Unhappy	1	1
Baccalaureate and higher (number = 614)		
Happy	86	86
Not care	13	14
Unhappy	1	*
Attentive public to science and technology^a (number = 195)		
Happy	86	86
Not care	12	12
Unhappy	3	3

* = <.5

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following questions:

-Now I'd like you to consider the following situations. If you had a daughter, how would you feel if she wanted to be a scientist—would you feel happy, unhappy, or would you not care one way or the other?

-If you had a son, how would you feel if he wanted to be a scientist—would you feel happy, unhappy, or would you not care one way or the other?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-40.
Response to statement, “Scientific work is dangerous”: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	6
Agree	47
Do not know	2
Disagree	41
Strongly disagree	4
Male (number = 751)	
Strongly agree	6
Agree	47
Do not know	2
Disagree	41
Strongly disagree	4
Female (number = 823)	
Strongly agree	6
Agree	47
Do not know	2
Disagree	41
Strongly disagree	4
Less than high school graduate (number = 116)	
Strongly agree	10
Agree	60
Do not know	1
Disagree	26
Strongly disagree	2
High school graduate (number = 834)	
Strongly agree	7
Agree	49
Do not know	3
Disagree	38
Strongly disagree	3
Baccalaureate and higher (number = 614)	
Strongly agree	1
Agree	29
Do not know	3
Disagree	60
Strongly disagree	7
Attentive public to science and technology^a (number = 195)	
Strongly agree	6
Agree	39
Do not know	3
Disagree	44
Strongly disagree	9

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-41.
Access to the World Wide Web at home: 2001
(Percentages)

Characteristic	No	Yes	Sample size (number)
All adults	41	59	1,574
Male	37	63	751
Female	45	55	823
Formal education			
Less than high school	68	32	116
High school graduate	42	58	834
Baccalaureate degree	19	81	393
Graduate/professional degree	19	81	221
Science/mathematics education^a			
Low	55	45	674
Middle	31	69	469
High	18	82	431
Attentiveness to science and technology^b			
Attentive public	33	67	195
Interested public	34	66	755
Residual public	52	48	624

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

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Appendix table 7-42.
Leading source of information about current news events: 2001
(Percentages)

Characteristic	Newspaper	Magazine	Internet	Books/ other print	TV	Radio	Family	Friend/ colleague	Other	Don't know	Sample size (number)
All adults	29	3	7	*	53	5	*	1	1	*	1,574
Male	29	4	10	*	48	7	*	1	1	*	751
Female	29	3	5	1	57	4	*	1	1	*	823
Formal education											
Less than high school	22	2	3	0	69	1	0	4	0	1	116
High school graduate	29	3	7	*	54	6	*	1	1	*	834
Baccalaureate degree	30	7	12	1	42	8	0	1	*	*	393
Graduate/professional degree	43	6	10	1	30	9	*	1	1	*	221
Science/mathematics education^a											
Low	25	2	3	*	62	4	*	2	*	*	674
Middle	33	4	9	*	46	5	*	1	1	1	469
High	33	6	16	*	35	9	*	1	1	*	431
Attentiveness to science and technology^b											
Attentive public	37	7	8	*	44	3	0	*	1	*	195
Interested public	27	4	9	1	53	6	*	1	1	*	755
Residual public	29	2	6	*	55	6	0	2	1	*	624

* = <.5

^aRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following question: We are interested in how people get information about events in the news. Thinking about the kind of issues we have been talking about, where do you get most of your information about current news events?

SOURCES: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See figure 7-19 in Volume 1.

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Appendix table 7-43.

Leading source of information about science and technology: 2001
 (Percentages)

Characteristic	Newspaper	Magazine	Internet	Books/ other printed	TV	Radio	Government agency	Family	Friend/ colleague	Other	Don't know	Sample size (number)
All adults	16	16	9	2	44	3	*	2	1	5	2	1,574
Male	17	18	13	2	41	4	*	1	1	3	1	751
Female	16	14	6	2	48	2	1	2	1	6	2	823
Formal Education												
Less than high school	13	9	2	4	53	4	1	1	1	9	4	116
High school graduate	16	15	10	2	48	2	*	2	1	3	1	834
Baccalaureate degree	17	23	16	3	31	3	0	1	1	4	1	393
Graduate/professional degree	25	30	11	2	23	2	*	1	1	4	0	221
Science/mathematics education^a												
Low	16	12	5	2	53	3	*	2	1	5	2	674
Middle	19	18	12	1	39	2	*	2	1	4	1	469
High	15	27	19	4	28	3	*	1	1	4	*	431
Attentiveness to science and technology^b												
Attentive public	20	35	14	3	21	1	*	1	0	5	0	195
Interested public	14	18	11	2	46	3	*	2	1	4	*	755
Residual public	18	10	7	2	48	3	*	1	1	5	3	624

* = <.5

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following question: We are also interested in how people get information about science and technology. Thinking about the kind of issues we have been talking about, where do you get most of your information about science and technology?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See figure 7-19 in Volume 1.

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Appendix table 7-44.
Leading source of information about specific scientific issue: 2001
(Percentages)

Characteristic	Newspaper	Magazine	Internet	Books/ other printed	TV	Radio	Government agency	Family	Friend/ colleague	Other	Don't know	Sample size (number)
All adults	4	8	44	24	6	*	*	*	1	8	5	1,574
Male	4	9	45	22	6	*	*	*	1	8	5	751
Female	2	8	43	26	6	0	1	1	*	8	5	823
Formal education												
Less than high school	3	5	26	29	13	0	0	1	1	9	12	116
High school graduate	3	7	45	25	6	0	*	*	*	8	4	834
Baccalaureate degree	3	13	55	18	3	*	1	*	0	7	1	393
Graduate/professional degree	2	13	55	21	1	0	*	0	1	6	1	221
Science/mathematics education^a												
Low	4	8	33	28	9	0	*	1	1	8	7	674
Middle	2	7	53	23	4	0	*	*	*	8	2	469
High	2	12	60	15	2	*	1	*	1	8	0	431
Attentiveness to science and technology^b												
Attentive public	3	11	47	25	5	0	0	0	*	5	2	195
Interested public	2	10	49	23	7	0	*	*	*	6	2	755
Residual public	4	6	38	25	6	*	*	1	1	11	8	624

* = <.5

^aRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Responses are to the following question: If you wanted to learn more about a scientific issue such as global warming or biotechnology, how would you get more information?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

See figure 7-19 in Volume 1.

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Appendix table 7-45.
Users of public information on an annual basis: 2001

Characteristic	Average number of visits per year		
	Science museum	Public library	Sample size (number)
All adults	3	10	1,574
Male	3	9	751
Female	3	12	823
Formal education			
Less than high school	2	6	116
High school graduate.....	2	10	834
Baccalaureate	4	14	393
Graduate/professional	4	18	221
Science/mathematics education^a			
Low	2	7	674
Middle	3	13	469
High	4	15	431
Attentiveness to science or technology^b			
Attentive public	4	13	195
Interested public	3	11	755
Residual public	2	9	624
Access to cable/satellite TV			
Cable and satellite	2	14	42
Cable	3	10	991
Satellite	2	9	253
Neither ^c	2	11	286

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

^cIncludes respondents who reported that they did not watch any television.

NOTE: A few respondents did not provide information about their highest level of education. Responses are to the following statements:

I am going to read to you a short list of places and ask you to tell me how many times you visited each type of place during the last year, that is, the last 12 months. If you did not visit a given place, just say none.

- A natural history museum?
- A zoo or an aquarium?
- A science or technology museum?
- A public library?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-46.

Viewers watching news magazines, public television, and science television shows: 2001
 (Percentages)

Characteristic	TV news magazines			Public television			NOVA			National Geographic specials			Sample size (number)
	Regularly	Occasionally	Not at all	Regularly	Occasionally	Not at all	Regularly	Occasionally	Not at all	Regularly	Occasionally	Not at all	
All adults	31	52	16	22	49	29	8	29	63	21	57	21	1,574
Male	25	56	19	20	49	30	8	33	59	24	56	18	751
Female	37	49	14	24	50	28	7	25	68	19	58	25	823
Formal education													
Less than high school	21	51	28	23	39	38	4	19	77	21	49	30	116
High school graduate	34	53	13	19	50	31	7	26	67	22	58	20	834
Baccalaureate degree	29	53	17	25	58	17	11	42	47	21	60	19	393
Graduate/professional degree ...	31	54	15	35	47	17	15	44	41	22	58	20	221
Science/mathematics education^a													
Low	32	51	17	22	46	33	6	25	69	21	55	23	674
Middle	33	53	15	20	53	27	8	29	62	21	59	20	469
High	25	57	18	26	53	21	11	39	50	23	59	18	431
Attentiveness to science and technology^b													
Attentive public	40	43	17	31	50	19	20	33	47	34	52	14	195
Interested public	32	52	16	22	50	28	8	32	60	24	60	17	755
Residual public	27	55	17	19	49	32	4	24	71	16	55	29	624

^aRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following questions:

I'd like to read you a short list of television shows and ask you to tell me whether you watch each show regularly, that is, most of the time, occasionally, or not at all.

—News magazine shows like *60 Minutes*, *20/20*, or *Dateline*.

—How about public television programs other than NOVA? NOVA? National Geographic Specials?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

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Appendix table 7-47.
Viewers watching television news: 2001
(Percentages)

Characteristic	Every day	A few times a week	Once a week	Less than once a week	Never	Sample size (number)
All adults	63	27	5	3	2	1,574
Male	60	29	6	3	2	751
Female	66	25	4	3	2	823
Formal education						
Less than high school	61	29	6	2	2	116
High school graduate	66	25	5	3	1	834
Baccalaureate degree	57	32	5	3	2	393
Graduate/professional degree	63	23	4	5	5	221
Science/mathematics education^a						
Low	67	23	5	3	2	674
Middle	60	31	4	3	2	469
High	57	30	5	6	2	431
Attentiveness to science and technology^b						
Attentive public	71	21	6	2	1	195
Interested public	65	25	5	3	2	755
Residual public	60	29	5	4	3	624

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

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Appendix table 7-48.
Daily newspaper readers: 1979–2001

Characteristic	1979	1981	1985	1988	1990	1992	1995	1997	1999	2001
Percent										
All adults	60	62	61	53	57	56	47	46	41	42
Male	63	64	66	52	63	63	52	49	44	45
Female	57	61	57	55	52	50	43	43	38	39
Formal education										
Less than high school	52	56	55	46	53	47	42	41	36	23
High school graduate	59	62	61	54	55	56	46	44	40	44
Baccalaureate degree	74	68	68	59	71	59	55	53	48	48
Graduate/professional degree	84	75	79	68	70	70	60	59	57	60
Attentiveness to science or technology^a										
Attentive public	88	88	85	77	87	76	77	79	75	78
Interested public	56	59	55	51	54	53	41	38	35	38
Residual public	58	57	61	50	53	54	48	42	38	38
Sample size (number)										
All adults	1,635	1,631	2,005	2,041	2,033	1,004	2,006	2,000	1,882	1,574
Male	773	775	950	958	964	486	953	930	900	751
Female	862	856	1,054	1,084	1,070	533	1,053	1,070	982	823
Less than high school graduate	465	404	507	530	495	215	418	420	403	116
High school graduate	932	941	1,147	1,158	1,202	623	1,196	1,188	1,111	834
Baccalaureate and higher	238	282	349	353	336	203	392	392	368	614
Attentive public to science and technology	154	208	235	233	229	105	195	288	216	195

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

See figure 7-20 in Volume 1.

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Appendix table 7-49.
Users of various sources of information: 2001
(Percentages)

Characteristic	Newspaper every day	News magazine read regularly	Public library visits per year 1 or more	Public library visits per year 5 or more	Science museum 1 or more visits per year	Sample size
All adults	42	16	75	48	66	1,574
Male	45	17	71	42	64	751
Female	39	14	78	53	68	823
Formal education						
Less than high school	23	7	60	27	54	116
High school graduate	44	13	74	48	64	834
Baccalaureate	48	25	85	62	81	393
Graduate/professional	60	31	85	67	83	221
Science/mathematics education^a						
Low	38	11	68	37	56	674
Middle	43	17	81	58	75	469
High	50	27	95	61	82	431
Attentiveness to science and technology^b						
Attentive public	78	29	78	55	75	195
Interested public	38	15	78	51	68	755
Residual public	38	13	70	42	62	624
Access to cable/satellite TV						
Cable and satellite	42	17	90	56	60	42
Cable	49	19	75	48	69	991
Satellite	35	10	73	43	63	253
Neither ^c	27	9	74	49	61	286

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

^cIncludes respondents who reported that they did not watch any television.

NOTE: A few respondents did not provide information about their highest level of education. Responses are to the following questions:

- How often do you read a newspaper: every day, a few times a week, once a week, or less than once a week?
- Are there any magazines that you read regularly, that is, most of the time? What magazine would that be?

I am going to read you a short list of places and ask you to tell me how many times you visited each type of place during the last year, that is, the last 12 months. If you did not visit any given place, just say none.

- A natural history museum?
- A zoo or an aquarium?
- A science or technology museum?
- A public library?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-50.

Visitors of science or technology museums one or more times per year: 1983–2001

Characteristic	1983	1985	1988	1990	1992	1995	1997	1999	2001
Percent									
All adults	61	58	59	59	62	61	60	61	66
Male	62	58	57	59	60	59	63	63	64
Female	60	57	61	60	63	63	58	60	68
Formal education									
Less than high school	43	37	36	30	40	32	34	37	54
High school graduate	63	61	64	66	64	64	64	63	64
Baccalaureate degree	78	78	80	79	78	80	78	83	81
Graduate/professional degree	83	79	81	76	78	83	75	79	83
Attentiveness to science or technology^a									
Attentive public	72	70	61	69	67	71	68	73	75
Interested public	66	60	63	60	61	65	66	67	68
Residual public	51	53	56	57	61	54	51	52	62
Sample size (number)									
All adults	1,631	2,005	2,041	2,033	1,004	2,006	2,000	1,882	1,574
Male	775	950	958	964	486	953	930	900	751
Female	856	1,054	1,084	1,070	533	1,053	1,070	982	823
Less than high school graduate	404	507	530	495	215	418	420	403	116
High school graduate	941	1,147	1,158	1,202	623	1,196	1,188	1,111	834
Baccalaureate and higher	282	349	353	336	203	392	392	368	614
Attentive public to science and technology	208	235	233	229	105	195	288	216	195

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-51.
Readers of science fiction books or magazines: 2001
(Percentages)

Characteristic	Read		Frequency of reading		Sample size (number)
	No	Yes	Regularly	Once in a while	
All adults	70	30	16	84	1,574
Male	69	31	16	84	751
Female	72	28	17	83	823
Formal education					
Less than high school	77	23	7	93	116
High school graduate	71	29	19	81	834
Baccalaureate degree	65	35	13	87	393
Graduate/professional degree	65	35	14	86	221
Science/mathematics education^a					
Low	77	23	18	82	674
Middle	67	33	10	90	469
High	57	43	20	80	431
Attentiveness to science and technology^b					
Attentive public	63	37	28	72	195
Interested public	66	34	17	83	755
Residual public	77	23	10	90	624

^aRespondents were classified as having a "high" level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as "middle" if they took six to eight such courses and "low" if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

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Appendix table 7-52.
Viewers of Star Trek and X-Files: 2001
(Percentages)

Characteristic	Star Trek			X-Files			Sample size (number)
	Regularly	Occasionally	Not at all	Regularly	Occasionally	Not at all	
All adults	11	21	68	15	28	57	1,574
Male	12	23	64	15	30	55	751
Female	10	18	72	14	27	59	823
Formal education							
Less than high school	11	16	73	17	29	54	116
High school graduate	11	21	68	15	30	55	834
Baccalaureate degree	11	25	64	16	22	62	393
Graduate/professional degree	8	20	71	7	27	66	221
Science/mathematics education^a							
Low	13	18	69	17	27	55	674
Middle	8	23	69	11	28	59	469
High	11	23	66	15	30	57	431
Attentiveness to science and technology^b							
Attentive public	14	22	64	15	32	53	195
Interested public	14	21	64	19	30	51	755
Residual public	6	19	74	10	26	64	624

^aRespondents were classified as having a “high” level of science/mathematics education if they took nine or more high school and college science/math courses. They were classified as “middle” if they took six to eight such courses and “low” if they took five or fewer.

^bTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: A few respondents did not provide information about their highest level of education.

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-53.
Public assessment of astrology: 1979–2001

Characteristic	1979	1981	1985	1988	1990	1992	1995	1997	1999	2001
	Percent									
All adults										
Very scientific	7	10	8	6	6	6	7	7	7	9
Sort of scientific	34	35	31	31	29	29	28	29	29	31
Not at all scientific	50	51	57	60	60	62	60	59	59	56
Do not know	9	4	4	3	5	3	5	5	5	4
Male										
Very scientific	7	9	7	5	5	6	7	7	7	9
Sort of scientific	30	29	29	25	23	25	24	27	25	27
Not at all scientific	54	58	60	67	67	67	65	63	63	60
Do not know	9	4	4	3	5	2	4	3	5	3
Female										
Very scientific	8	10	9	7	6	7	7	7	7	8
Sort of scientific	37	41	32	37	35	32	32	31	32	36
Not at all scientific	46	44	55	53	55	58	55	55	56	52
Do not know	9	5	4	3	4	3	6	7	5	4
Less than high school graduate										
Very scientific	11	13	14	11	7	12	11	11	13	14
Sort of scientific	34	37	38	35	31	33	28	37	34	35
Not at all scientific	39	40	43	50	50	49	48	42	41	45
Do not know	16	10	5	4	12	6	13	10	12	6
High school graduate										
Very scientific	7	10	8	6	6	6	8	7	7	9
Sort of scientific	37	38	29	32	32	31	30	30	30	35
Not at all scientific	50	50	60	59	60	61	59	59	60	52
Do not know	6	2	3	3	2	2	3	4	3	4
Baccalaureate and higher										
Very scientific	2	3	3	2	3	3	2	3	2	4
Sort of scientific	20	25	25	23	18	17	22	19	19	21
Not at all scientific	71	69	70	74	77	78	74	76	76	74
Do not know	7	3	2	1	2	2	2	2	3	2
Attentive public to science and technology^a										
Very scientific	8	9	7	3	6	15	8	7	12	4
Sort of scientific	28	34	27	29	21	23	24	29	23	25
Not at all scientific	60	54	62	66	72	58	65	62	64	68
Do not know	4	3	4	2	1	4	3	2	1	2
Sample size (number)										
All adults										
Male	1,635	1,631	2,005	2,041	2,033	1,004	2,006	2,000	1,882	1,574
Female	773	775	950	958	964	486	953	930	900	751
Less than high school graduate	862	856	1,054	1,084	1,070	533	1,053	1,070	982	823
High school graduate	465	404	507	530	495	215	418	420	403	116
Baccalaureate and higher	932	941	1,147	1,158	1,202	623	1,196	1,188	1,111	834
Attentive public to science and technology	238	282	349	353	336	203	392	392	368	614
154	208	235	233	229	105	195	288	216	195	

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Responses are to the following question: Would you say that astrology is very scientific, sort of scientific, or not at all scientific?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, various years.

See figure 7-21 in Volume 1.

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Appendix table 7-54.

Frequency of reading astrology reports, by selected characteristics: 1985–2001

Characteristic	1985	1988	1990	1992	1997	1999	2001
	Percent						
All adults							
Every day	9	9	9	8	7	6	7
Quite often	6	8	8	7	8	6	8
Just occasionally	37	33	33	35	33	32	30
Almost never	13	13	12	13	12	17	18
Never	35	37	38	37	38	39	38
Do not know	*	0	0	0	2	*	*
Male							
Every day	8	6	5	6	3	4	4
Quite often	5	4	4	6	6	4	7
Just occasionally	30	30	29	29	32	26	23
Almost never	14	15	14	14	13	18	20
Never	43	45	48	45	44	48	46
Do not know	*	0	0	0	2	0	0
Female							
Every day	10	13	12	10	10	7	10
Quite often	6	11	11	9	9	7	8
Just occasionally	44	37	37	40	35	37	36
Almost never	12	10	11	12	11	16	16
Never	27	29	29	29	33	33	30
Do not know	*	0	0	0	2	*	*
Less than high school graduate							
Every day	11	13	13	10	11	11	9
Quite often	7	8	7	9	8	7	7
Just occasionally	31	28	28	35	32	26	26
Almost never	11	10	9	14	6	15	19
Never	39	41	43	32	43	41	39
Do not know	*	0	0	0	*	*	0
High school graduate							
Every day	10	8	9	9	7	5	7
Quite often	5	9	8	8	9	6	9
Just occasionally	40	36	36	37	35	34	32
Almost never	13	13	12	11	13	17	16
Never	32	35	35	35	34	38	35
Do not know	*	0	0	0	2	0	*
Baccalaureate and higher							
Every day	5	6	4	5	4	3	4
Quite often	5	5	6	4	4	4	4
Just occasionally	37	33	30	29	29	30	27
Almost never	16	16	18	16	15	20	22
Never	36	40	42	46	44	43	43
Do not know	*	0	0	0	4	0	0
Attentive public to science and technology^a							
Every day	12	17	13	15	13	7	14
Quite often	6	8	5	4	9	3	8
Just occasionally	33	30	38	27	30	33	26
Almost never	13	11	10	11	12	16	13
Never	36	34	34	43	32	41	40
Do not know	0	0	0	0	4	0	0
Sample size (number)							
All adults	2,005	2,041	2,033	1,004	2,000	1,882	1,574
Male	950	958	964	486	930	900	751
Female	1,054	1,084	1,070	533	1,070	982	823
Less than high school graduate	507	530	495	215	420	403	116
High school graduate	1,147	1,158	1,202	623	1,188	1,111	834
Baccalaureate and higher	349	353	336	203	392	368	614
Attentive public to science and technology	235	233	229	105	288	216	195

See explanatory notes, if any, and SOURCE at end of table.

Appendix table 7-54.

Frequency of reading astrology reports, by selected characteristics: 1985–2001

* = <.5

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Responses are to the following questions:

–Do you ever read a horoscope or your personal astrology report?

–(If yes:) Do you read an astrology report every day, quite often, just occasionally, or almost never?

SOURCE: National Science Foundation, Division of Science Resource Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-55.
Belief in psychic powers or extrasensory perception, by selected characteristics: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	7
Agree	53
Do not know	4
Disagree	29
Strongly disagree	7
Male (number = 751)	
Strongly agree	7
Agree	47
Do not know	4
Disagree	34
Strongly disagree	7
Female (number = 823)	
Strongly agree	7
Agree	58
Do not know	4
Disagree	25
Strongly disagree	6
Less than high school graduate (number = 116)	
Strongly agree	4
Agree	42
Do not know	4
Disagree	41
Strongly disagree	9
High school graduate (number = 834)	
Strongly agree	8
Agree	57
Do not know	3
Disagree	26
Strongly disagree	8
Baccalaureate and higher (number = 614)	
Strongly agree	8
Agree	52
Do not know	5
Disagree	29
Strongly disagree	5
Attentive public to science and technology^a (number = 195)	
Strongly agree	10
Agree	49
Do not know	4
Disagree	29
Strongly disagree	8

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Percentages may not add to 100 because of rounding. Responses are to the following statement: Some people possess psychic powers or ESP. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-56.
Belief that unidentified flying objects are space vehicles from other civilizations: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Strongly agree	3
Agree	27
Do not know	13
Disagree	45
Strongly disagree	12
Male (number = 751)	
Strongly agree	4
Agree	25
Do not know	12
Disagree	46
Strongly disagree	13
Female (number = 823)	
Strongly agree	2
Agree	28
Do not know	14
Disagree	45
Strongly disagree	11
Less than high school graduate (number = 116)	
Strongly agree	4
Agree	28
Do not know	10
Disagree	48
Strongly disagree	11
High school graduate (number = 834)	
Strongly agree	3
Agree	28
Do not know	13
Disagree	44
Strongly disagree	12
Baccalaureate and higher (number = 614)	
Strongly agree	2
Agree	22
Do not know	16
Disagree	48
Strongly disagree	12
Attentive public to science and technology^a (number = 195)	
Strongly agree	3
Agree	33
Do not know	13
Disagree	36
Strongly disagree	15

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: A few respondents did not provide information about their highest level of education. Percentages may not add to 100 because of rounding. Responses are to the following statement: Some of the unidentified flying objects that have been reported are really space vehicles from other civilizations. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-57.
Belief in lucky numbers, by selected characteristics: 1988–2001

Characteristic	1988	1990	1992	1995	1997	1999	2001
	Percent						
All adults							
Strongly agree	1	2	3	2	2	3	3
Agree	35	33	33	35	34	31	29
Do not know	5	4	3	4	5	3	4
Disagree	51	51	50	48	46	51	53
Strongly disagree	8	10	11	11	13	12	11
Male							
Strongly agree	2	2	4	3	2	4	3
Agree	35	31	33	34	33	30	30
Do not know	4	3	3	3	5	2	3
Disagree	50	52	48	48	46	51	52
Strongly disagree	9	12	12	12	14	13	13
Female							
Strongly agree	1	2	2	2	2	3	3
Agree	36	36	34	37	36	32	29
Do not know	5	5	3	4	5	4	5
Disagree	52	50	52	48	45	51	54
Strongly disagree	6	7	9	9	12	10	10
Less than high school graduate							
Strongly agree	1	2	7	3	4	7	3
Agree	47	46	43	46	43	39	48
Do not know	7	6	5	6	8	4	4
Disagree	43	44	40	41	33	44	40
Strongly disagree	2	2	5	4	12	6	6
High school graduate							
Strongly agree	2	3	3	3	2	2	3
Agree	34	33	35	37	36	33	27
Do not know	3	3	2	3	4	3	4
Disagree	54	52	51	48	48	52	56
Strongly disagree	7	9	9	9	10	10	10
Baccalaureate and higher							
Strongly agree	1	1	0	1	2	1	2
Agree	23	16	18	20	20	21	20
Do not know	5	4	4	4	5	3	4
Disagree	53	59	57	55	52	52	56
Strongly disagree	18	20	21	20	21	23	18
Attentive public to science and technology^a							
Strongly agree	2	2	5	6	5	6	4
Agree	36	28	32	25	29	27	30
Do not know	4	5	4	3	6	2	4
Disagree	45	51	44	48	42	45	50
Strongly disagree	13	14	15	18	18	20	13
Sample size (number)							
All adults	2,041	2,033	1,004	2,006	2,000	1,882	1,574
Male	958	964	486	953	930	900	751
Female	1,084	1,070	533	1,053	1,070	982	823
Less than high school graduate	530	495	215	418	420	403	116
High school graduate	1,158	1,202	623	1,196	1,188	1,111	834
Baccalaureate and higher	353	336	203	392	392	368	614
Attentive public to science and technology	233	229	105	195	288	216	195

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is “very interested” in that issue, is “very well informed” about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are “very interested” in an issue area but do not think that they are “very well informed” about it are classified as the “interested public.” All other individuals are classified as members of the “residual public” for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following statement:

Some numbers are especially lucky for some people. Do you strongly agree, agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-58.
Belief in alternative medicine, by selected characteristics: 2001
(Percentages)

Characteristic	2001
All adults (number= 1,574)	
Strongly agree	18
Agree	70
Do not know	3
Disagree	7
Strongly disagree	1
Male (number= 751)	
Strongly agree	18
Agree	72
Do not know	3
Disagree	6
Strongly disagree	1
Female (number= 823)	
Strongly agree	19
Agree	69
Do not know	4
Disagree	8
Strongly disagree	1
Less than high school graduate (number = 116)	
Strongly agree	15
Agree	68
Do not know	5
Disagree	11
Strongly disagree	1
High school graduate (number = 834)	
Strongly agree	18
Agree	71
Do not know	4
Disagree	7
Strongly disagree	1
Baccalaureate and higher (number = 614)	
Strongly agree	20
Agree	72
Do not know	1
Disagree	5
Strongly disagree	1
Attentive public to science and technology^a (number = 195)	
Strongly agree	21
Agree	68
Do not know	2
Disagree	7
Strongly disagree	3

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTES: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following statement: There are some good ways of treating sickness that medical science does not recognize. Do you strongly agree, disagree, or strongly disagree?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 7-59.
Public assessment of magnetic therapy, by selected characteristics: 2001
(Percentages)

Characteristic	2001
All adults (number = 1,574)	
Very scientific	14
Sort of scientific	54
Not at all scientific	25
Do not know	7
Male (number = 751)	
Very scientific	14
Sort of scientific	51
Not at all scientific	28
Do not know	6
Female (number = 823)	
Very scientific	14
Sort of scientific	56
Not at all scientific	22
Do not know	8
Less than high school graduate (number = 116)	
Very scientific	30
Sort of scientific	47
Not at all scientific	18
Do not know	5
High school graduate (number = 834)	
Very scientific	13
Sort of scientific	58
Not at all scientific	22
Do not know	6
Baccalaureate and higher (number = 614)	
Very scientific	8
Sort of scientific	47
Not at all scientific	35
Do not know	10
Attentive public to science and technology^a (number = 195)	
Very scientific	14
Sort of scientific	47
Not at all scientific	34
Do not know	5

^aTo be classified as attentive to a given policy area, an individual must indicate that he or she is "very interested" in that issue, is "very well informed" about it, and a regular reader of a daily newspaper or relevant national magazine. Individuals who report that they are "very interested" in an issue area but do not think that they are "very well informed" about it are classified as the "interested public." All other individuals are classified as members of the "residual public" for that issue. The attentive public for science and technology combines the attentive public for new scientific discoveries and the attentive public for new inventions and technologies. Any individual who is not attentive to either of those issues but who is a member of the interested public for at least one of those issues is classified as a member of the interested public for science and technology. All other individuals are classified as members of the residual public for science and technology.

NOTE: Percentages may not add to 100 because of rounding. A few respondents did not provide information about their highest level of education. Responses are to the following question: Based on what you've read or heard, would you say that magnetic therapy is very scientific, sort of scientific, or not at all scientific?

SOURCE: National Science Foundation, Division of Science Resources Statistics (NSF/SRS), NSF Survey of Public Attitudes Toward and Understanding of Science and Technology, 2001.

Appendix table 8-1.
Moore's Law: 1971–2005

	Transistor count
1971	2,300
1972	3,500
1974	6,000
1978	29,000
1982	134,000
1985	275,000
1989	1,200,000
1993	3,100,000
1995	5,500,000
1997	7,500,000
1999	19,000,000
2001	44,000,000
2003	95,200,000
2005	190,000,000

NOTE: Data for 2003–05 are projected.

SOURCES: 1971–01—Available at <<http://www.intel.com/pressroom/kits/quickrefyr.htm>>; 2003–05—International Technology Roadmap for Semiconductors. 2000 *International Technology Roadmap for Semiconductors*, available at <<http://public.itrs.net/Files/2000UpdateFinal/ORTC2000final.pdf>>.

Appendix table 8-2.

Worldwide production of original content, stored digitally using standard compression methods: circa 1999

Storage medium and content	Production (terabytes per year)		Annual growth rate (percent)
	Upper estimate	Lower estimate	
Total	2,120,539	635,480	50
Paper			
Books	8	1	2
Newspapers	25	2	-2
Periodicals	12	1	2
Office documents	195	19	2
Subtotal	240	23	2
Film			
Photographs	410,000	41,000	5
Cinema	16	16	3
X-rays	17,200	17,200	2
Subtotal	427,216	58,216	4
Optical			
Music CDs	58	6	3
Data CDs	3	3	2
DVDs	22	22	100
Subtotal	83	31	70
Magnetic			
Camcorder tape	300,000	300,000	5
PC disk drives	766,000	7,660	100
Departmental servers	460,000	161,000	100
Enterprise servers	167,000	108,550	100
Subtotal	1,693,000	577,210	55

SOURCE: P. Lyman and H.R. Varian. "How Much Information?" 2000. Available at <<http://www.sims.berkeley.edu/how-much-info/summary.html>>. Accessed July 2, 2001.

See figure 8-2 in Volume 1.

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Appendix table 8-3.

Mobile phone penetration in OECD countries: 1990–99

Per 100 inhabitants

Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	June 1999
OECD average	1.0	1.4	2.0	2.7	4.3	6.7	10.5	15.6	22.6	26.8
Finland	4.5	5.7	7.0	9.1	12.8	19.9	29.2	45.6	58.0	60.7
Norway	4.6	5.3	6.5	8.6	13.5	22.6	29.0	38.4	48.6	54.7
Iceland	3.9	5.0	5.9	6.6	8.2	11.5	17.1	24.0	38.7	53.0
Sweden	5.4	6.6	7.5	9.0	15.8	22.8	28.3	35.8	46.5	49.9
South Korea	0.2	0.4	0.6	1.1	2.2	3.7	7.0	15.1	30.6	44.8
Denmark	2.9	3.4	4.1	6.9	9.7	15.7	25.1	27.5	33.5	43.7
Italy	0.5	1.0	1.4	2.1	3.9	6.9	11.2	20.5	35.8	42.8
Japan	0.7	1.1	1.4	1.7	3.5	8.2	16.7	30.4	37.7	39.6
Luxembourg	0.2	0.3	0.3	1.3	3.2	6.6	10.9	16.1	22.5	39.3
Portugal	0.1	0.1	0.4	1.0	1.8	3.5	6.8	15.4	31.4	38.3
Austria	1.0	1.5	2.2	2.8	3.5	4.8	7.4	14.3	27.5	38.3
Australia	1.1	1.7	2.5	3.9	6.2	10.7	21.5	26.0	32.1	35.2
Netherlands	0.5	0.8	1.1	1.4	2.1	3.5	2.0	10.8	21.4	32.0
Switzerland	1.8	2.5	3.1	3.7	4.6	6.2	9.2	14.4	23.0	30.8
United Kingdom	1.9	2.2	2.6	3.8	6.8	9.8	11.7	14.3	25.6	28.9
United States	2.1	2.9	4.3	5.6	8.5	11.8	16.3	20.4	25.5	28.3
Ireland	0.7	0.9	1.3	1.6	2.3	3.7	8.2	14.4	26.6	27.3
Spain	0.1	0.3	0.5	0.7	1.0	2.3	7.6	10.9	17.8	27.2
Greece	0.0	0.0	0.0	0.3	1.5	5.3	6.7	8.6	19.5	26.7
France	0.5	0.7	0.8	0.8	1.4	2.5	4.2	9.8	19.1	24.3
New Zealand	1.6	2.1	2.9	4.1	5.3	9.2	11.7	16.6	19.5	21.7
Belgium	0.4	0.5	0.6	0.7	1.3	2.3	4.7	9.6	17.2	21.5
Germany	0.3	0.7	1.2	2.2	3.0	4.6	7.1	9.9	16.9	21.2
Canada.....	2.1	2.8	3.6	4.6	6.4	8.8	11.5	14.1	17.8	20.0
Hungary	0.0	0.1	0.2	0.4	1.4	2.6	4.7	7.1	10.7	12.8
Czech Republic	0.0	0.0	0.0	0.1	0.3	0.4	2.0	5.1	9.4	12.5
Turkey	0.1	0.1	0.1	0.1	0.3	0.7	1.3	2.6	5.6	8.9
Poland	0.0	0.0	0.0	0.0	0.1	0.2	0.6	2.1	5.0	7.9
Mexico	0.1	0.2	0.4	0.4	0.6	0.8	1.1	1.8	3.5	5.1

SOURCE: Organisation for Economic Co-operation and Development (OECD). 2000. *Cellular Mobile Pricing Structures and Trends*. Paris.

See figures 8-5 and 8-6 in Volume 1.

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Appendix table 8-4.
Internet hosts per 1,000 inhabitants in OECD countries

Country	July 1997	July 1998	July 1999	July 2000	October 2000
OECD average	20.3	31.4	49.0	74.2	81.5
Australia	30.9	40.2	52.3	67.8	75.0
Austria	7.2	17.8	27.9	48.6	57.6
Belgium	7.9	16.4	26.1	36.1	39.7
Canada.....	30.4	51.2	73.9	112.6	127.2
Czech Republic	4.4	7.0	9.7	12.9	12.9
Denmark	26.0	37.1	59.2	68.1	72.5
Finland	68.1	99.2	120.5	147.4	159.1
France	5.3	7.7	12.0	18.1	19.2
Germany	10.3	14.8	20.1	28.0	31.7
Greece	2.8	3.6	6.8	10.8	13.0
Hungary	3.2	8.0	10.9	15.0	15.4
Iceland	40.2	71.6	96.5	115.6	130.8
Ireland	13.0	12.8	16.4	28.1	31.1
Italy	3.7	5.0	9.0	25.2	32.6
Japan	8.4	12.8	18.3	28.3	32.5
Korea.....	2.1	3.8	6.8	9.5	10.8
Luxembourg	3.1	14.5	19.4	33.3	30.5
Mexico	0.2	0.7	1.6	3.5	3.8
Netherlands.....	21.9	35.3	50.6	75.3	81.6
New Zealand	29.8	52.6	55.3	86.4	92.6
Norway	40.9	75.6	85.7	106.7	116.5
Poland	2.0	2.6	4.1	6.9	8.2
Portugal.....	3.1	5.1	6.3	10.5	13.4
Spain	4.0	6.3	9.3	14.8	15.7
Sweden	35.0	45.2	63.2	98.2	106.3
Switzerland	20.7	33.4	43.5	58.0	63.5
Turkey	0.3	0.5	1.1	3.0	3.3
United Kingdom	15.7	23.6	33.3	47.9	52.5
United States	56.5	87.5	142.0	215.0	234.2

SOURCE: Organisation for Economic Co-operation and Development (OECD). 2001. *Communications Outlook–2001*. Paris. Data from Netsizer (<<http://www.netsizer.com>>).

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Appendix table 8-5.
Percentage of households with computer

Characteristic	December 1998	August 2000	Percentage point change	Percentage growth rate
All	42.1	51.0	8.9	21.1
Race/ethnicity				
White non-Hispanic	46.6	55.7	9.1	19.5
Asian/Pacific Islander	55.0	65.6	10.6	19.3
Black non-Hispanic.....	23.2	32.6	9.4	40.5
Hispanic	25.5	33.7	8.2	32.2
Income (dollars)				
<15,000	14.5	19.2	4.7	32.4
15,000–24,999	23.7	30.1	6.4	27.0
25,000–34,999	35.8	44.6	8.8	24.6
35,000–49,999	50.2	58.6	8.4	16.7
50,000–74,999	66.3	73.2	6.9	10.4
75,000+	79.9	86.3	6.4	8.0
Education				
Less than high school	12.5	18.2	5.7	45.6
High school graduate.....	31.2	39.6	8.4	26.9
Some college	49.3	60.3	11.0	22.3
College graduate	66.9	74.0	7.1	10.6
Postgraduate	72.2	79.0	6.8	9.4
Location				
Rural	39.9	50.4	10.5	26.3
Urban	42.9	51.5	8.6	20.0
Central city	38.5	53.7	15.2	39.5

SOURCE: U.S. Department of Commerce. 2000. *Falling Through the Net: Toward Digital Inclusion. A Report on Americans' Access to Technology Tools*. Washington, DC.

See figures 8-13 and 8-16 in Volume 1.

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Appendix table 8-6.
Percentage of households with Internet access

Characteristic	December 1998	August 2000	Percentage point change	Percentage growth rate
All	26.2	41.5	15.3	58.4
Race/ethnicity				
White non-Hispanic	29.8	46.1	16.3	54.7
Asian/Pacific Islander	36.0	56.8	20.8	57.8
Black non-Hispanic	11.2	23.5	12.3	109.8
Hispanic	12.6	23.6	11.0	87.3
Income (dollars)				
<15,000	7.1	12.7	5.6	78.9
15,000–24,999	11.0	21.3	10.3	93.6
25,000–34,999	19.1	34.0	14.9	78.0
35,000–49,999	29.5	46.1	16.6	56.3
50,000–74,999	43.9	60.9	17.0	38.7
75,000+	60.3	77.7	17.4	28.9
Education				
Less than high school	5.0	11.7	6.7	134.0
High school graduate	16.3	29.9	13.6	83.4
Some college	30.2	49.0	18.8	62.3
College graduate	46.8	64.0	17.2	36.8
Postgraduate	53.0	69.9	16.9	31.9
Location				
Rural	22.2	38.9	16.7	75.2
Urban	27.5	42.3	14.8	53.8
Central city	24.5	37.7	13.2	53.9

SOURCE: U.S. Department of Commerce. 2000. *Falling Through the Net: Toward Digital Inclusion. A Report on Americans' Access to Technology Tools*. Washington, DC.

See figures 8-13, 8-14, 8-15, and 8-17 in volume 1.

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Appendix table 8-7.

Internet use for individuals age 3 and older

Characteristic	December 1998		August 2000		Internet use (percent)			Percentage point change	Percentage growth rate
	Total		Total		December	August			
	Internet users	population	Internet users	population	1998	2000			
Total	84,587	258,453	116,480	262,620	32.7	44.4	11.6	36	
Male	43,033	125,932	56,962	127,844	34.2	44.6	10.4	30	
Female	41,555	132,521	59,518	134,776	31.4	44.2	12.8	41	
Race/ethnicity									
White non-Hispanic	69,470	184,980	93,714	186,439	37.6	50.3	12.7	34	
Asian/Pacific Islanders	3,467	32,123	9,624	32,850	19.0	29.3	10.3	54	
Black non-Hispanic	6,111	9,688	5,095	10,324	35.8	49.4	13.6	38	
Hispanic	4,887	29,452	7,325	30,918	16.6	23.7	7.1	43	
Employment status									
Employed ^a	56,790	133,516	77,507	136,756	42.5	56.7	14.2	33	
Not employed ^a	1,647	5,726	2,698	5,961	28.8	45.3	16.5	58	
Not in the labor force	14,411	70,924	20,661	71,232	20.3	29.0	8.7	43	
Income (dollars)									
<15,000	5,170	37,864	6,057	32,096	13.7	18.9	5.2	38	
15,000–24,999	5,623	30,581	7,063	27,727	18.4	25.5	7.1	38	
25,000–34,999	8,050	31,836	11,054	31,001	25.3	35.7	10.4	41	
35,000–49,999	13,528	39,026	16,690	35,867	34.7	46.5	11.9	34	
50,000–74,999	19,902	43,776	25,059	43,451	45.5	57.7	12.2	27	
75,000+	24,861	42,221	36,564	52,189	58.9	70.1	11.2	19	
Education ^b									
Elementary	206	12,529	452	12,253	1.6	3.7	2.1	141	
Less than high school	1,022	16,510	2,030	16,002	6.2	12.7	6.5	105	
High school graduate	10,961	57,103	17,425	56,889	19.2	30.6	11.4	59	
Some college	16,603	43,038	24,201	44,628	38.6	54.2	15.6	40	
Bachelor's degree or higher	26,571	43,509	34,083	45,755	61.1	74.5	13.4	22	
Age (years)									
3–8	2,680	24,282	3,671	23,962	11.0	15.3	4.3	39	
9–17	15,396	35,821	19,579	36,673	43.0	53.4	10.4	24	
18–24	11,356	25,662	15,039	26,458	44.3	56.8	12.6	28	
25–49	41,694	101,836	56,433	101,946	40.9	55.4	14.4	35	
50+	13,669	70,852	21,758	73,580	19.3	29.6	10.3	53	

^aAge 16 and older.^bAge 25 and older.

NOTE: Internet users and population figures are in thousands. Details may not add to total because of rounding.

SOURCE: U.S. Department of Commerce. 2000. *Falling Through the Net: Toward Digital Inclusion. A Report on Americans' Access to Technology Tools*. Washington, DC.

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Appendix
Tables